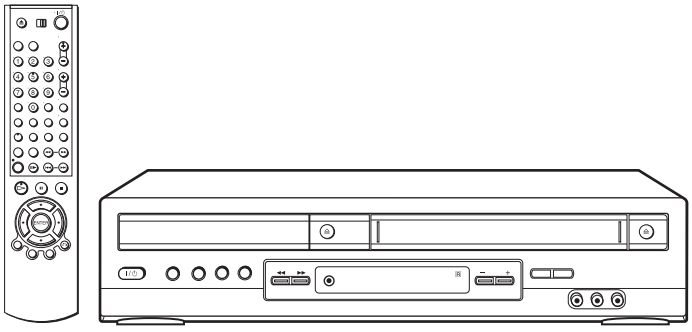
SLV-D300P

RMT-V501A

SERVICE MANUAL

US Model



TS-10 MECHANISM

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT MANUAL VII for MECHANICAL ADJUSTMENTS. (9-921-790-11)

SPECIFICATIONS

System

Laser
Semiconductor laser
Format
VHS NTSC standard
Video recording system
Rotary head helical scanning FM system
Video heads
Double azimuth four heads
Video signal
NTSC color, EIA standards
Tape speed
SP: 33.35 mm/s (1 3/8 inches/s)
EP: 11.12 mm/s (7/16 inches/s)
LP: 16.67 mm/s (11/16 inches/s), playback only
Maximum recording/playback time
8 hrs. in EP mode (with T-160 tape)
Rewind time
Approx. 1 min (with T-120 tape)

Tuner section

Channel coverage
VHF 2 to 13
UHF 14 to 69
CATV A-8 to A-1, A to W, W+1 to W+84
Antenna
75-ohm antenna terminal for VHF/UHF

Audio characteristics

Frequency response
DVD VIDEO (PCM 96 kHz): 2 Hz to 44 kHz (±1.0 dB)/DVD VIDEO (PCM 48 kHz): 2 Hz to 22 kHz (±0.5 dB)/CD: 2 Hz to 20 kHz (±0.5 dB)
Signal-to-noise ratio (S/N ratio)
115 dB (LINE OUT (L/R) AUDIO jacks only)
Harmonic distortion
0.003 %
Dynamic range
DVD VIDEO: 103 dB/CD: 99 dB
Wow and flutter
Less than detected value (±0.001% W PEAK)

The signals from LINE OUT L/R (AUDIO) jacks are measured. When you play PCM sound tracks with a 96 kHz sampling frequency, the output signals from the DIGITAL OUT (OPTICAL or COAXIAL) jack are converted to 48 kHz sampling frequency.

Inputs and outputs

LINE IN 1 and LINE-2 IN
VIDEO IN, phono jack (1 each)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN, phono jacks (2 each)
Input level: 327 mVrms
Input impedance: more than 47 kilohms
LINE OUT
VIDEO OUT, phono jack (1)
Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO OUT, phono jacks (2)
Standard output: 327 mVrms
Load impedance: 47 kilohms
Output impedance: less than 10 kilohms
DIGITAL OUT
OPTICAL, Optical output jack
–18 dBm (wave length: 660 nm)
COAXIAL, phono jack
Output signal: 0.5 Vp-p, 75 ohms
COMPONENT VIDEO OUT (Y, Pb, Pr)
Phono jack
Y: 1.0 Vp-p/Pb, Pr: 0.7 Vp-p, 75 ohms
S-VIDEO OUT
4-pin, mini-DIN jack
Y: 1.0 Vp-p, unbalanced, sync negative
C: 0.286 Vp-p, load impedance 75 ohms

Timer section

Clock
Quartz locked
Timer indication
12-hour cycle
Timer setting
8 programs (max.)

General

Power requirements
120 V AC, 60 Hz
Power consumption
28 W
Operating temperature
0°C to 45°C (32°F to 113°F)
Storage temperature
–20°C to 60°C (–4°F to 140°F)
Operating humidity
25% to 80%
Dimensions including projecting parts and controls (w/h/d)
Approx. 430 × 95 × 295 mm (Approx. 17 × 3.7 × 12 inches)
Mass
Approx. 4.0 kg (Approx. 8.8 lbs)

Supplied accessories

Remote commander (1)
Size AA (R6) batteries (2)
75-ohm coaxial cable with F-type connectors (1)
Audio/video cord (pinplug × 3 ⟷ pinplug × 3) (1)

Design and specifications are subject to change without notice.

DVD PLAYER/ VIDEO CASSETTE RECORDER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

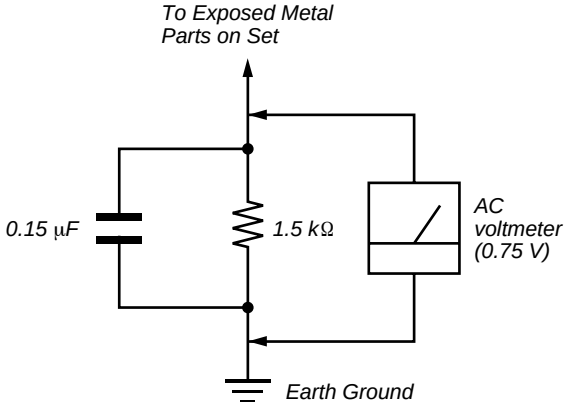


Fig. A. Using an AC voltmeter to check AC leakage.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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PRECAUTIONS

1 SAFETY PRECAUTIONS

1) Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

(1) Be sure that no built-in protective devices are defective or have been defeated during servicing.
(1)Protective shields are provided to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience.
(2)When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fish papers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.

(2) Be sure that there are no cabinet openings through which adults or children might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, excessively wide cabinet ventilation slots, and an improperly fitted and/or incorrectly secured cabinet back cover.

(3) Leakage Current Hot Check-With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1270 (40.7). With the instrument's AC switch first in the ON position and then in the OFF position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinets, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis.
Any current measured must not exceed 0.5mA. Reverse the instrument power cord plug in the outlet and repeat the test. See Fig. 1.
Any measurements not within the limits specified herein indicate a potential shock hazard that must be eliminated before returning the instrument to the customer.

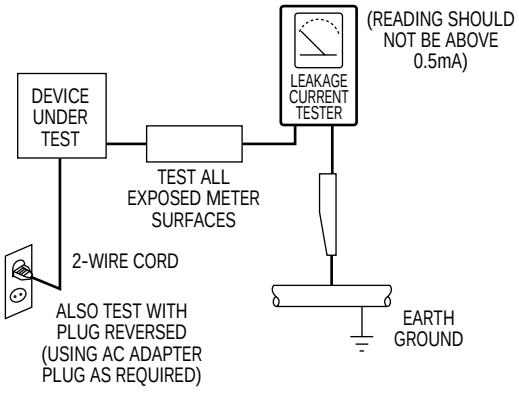

(READING SHOULD NOT BE ABOVE 0.5mA)
LEAKAGE CURRENT TESTER
DEVICE UNDER TEST
TEST ALL EXPOSED METER SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Fig. 1 AC Leakage Test

(4) Insulation Resistance Test Cold Check-(1) Unplug the power supply cord and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the instrument. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and all exposed metallic cabinet parts on the instrument, such as screwheads, antenna, control shafts, handle brackets, etc. When an exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 megohm. When there is no return path to the chassis, the reading must be infinite. If the reading is not within the limits specified, there is the possibility of a shock hazard, and the instrument must be repared and rechecked before it is returned to the customer. See Fig. 2.

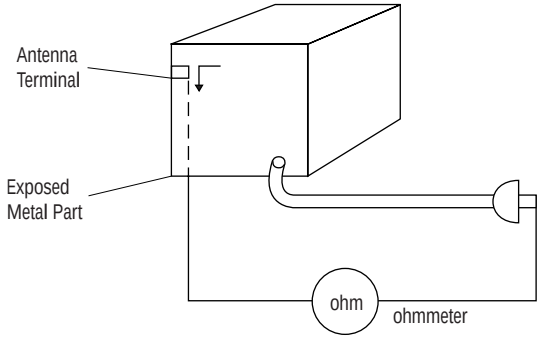


Fig. 2 Insulation Resistance Test

2) Read and comply with all caution and safety related notes on or inside the cabinet, or on the chassis.

3) Design Alteration Warning-Do not alter or add to the mechanical or electrical design of this instrument. Design alterations and additions, including but not limited to, circuit modifications and the addition of items such as auxiliary audio output connections, might alter the safety characteristics of this instrument and create a hazard to the user. Any design alterations or additions will make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4) Observe original lead dress. Take extra care to assure correct lead dress in the following areas:
(1) near sharp edges, (2) near thermally hot parts (be sure that leads and components do not touch thermally hot parts), (3) the AC supply, (4) high voltage, and (5) antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring, Do not change spacing between a component and the printed-circuit board. Check the AC power cord for damage.

5) Components, parts, and/or wiring that appear to have overheated or that are otherwise damaged should be replaced with components, parts and/ or wiring that meet original specifications.
Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

6) Product Safety Notice-Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by shading, an (⚠) or a (⚠) on schematics and parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

2 SERVICING PRECAUTIONS

CAUTION: Before servicing units covered by this service manual and its supplements, read and follow the Safety Precautions section of this manual.

Note: If unforseen circument create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions. Remember: Safety First.

2-1 General Servicing Precautions

(1) a. Always unplug the instrument's AC power cord from the AC power source before (1) re-moving or reinstalling any component, circuit board, module or any other instrument assembly, (2) disconnecting any instrument electrical plug or other electrical connection, (3) connecting a test substitute in parallel with an electrolytic capacitor in the instrument.
   b. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
   c. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
   d. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.

Note: Refer to the Safety Precautions section ground lead last.

(2) The service precautions are indicated or printed on the cabinet, chassis or components. When servicing, follow the printed or indicated service precautions and service materials.

(3) The components used in the unit have a specified flame resistance and dielectric strength.
When replacing components, use components which have the same ratings. Components identified by shading, by (⚠) or by (⚠) in the circuit diagram are important for safety or for the characteristics of the unit. Always replace them with the exact replacement components.

(4) An insulation tube or tape is sometimes used and some components are raised above the printed wiring board for safety. The internal wiring is sometimes clamped to prevent contact with heating components. Install such elements as they were.

(5) After servicing, always check that the removed screws, components, and wiring have been installed correctly and that the portion around the serviced part has not been damaged and so on. Further, check the insulation between the blades of the attachment plug and accessible conductive parts.

2-2 Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power ON. Connect the insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (see note) should be more than 1 Megohm.

Note: Accessible conductive parts include metal panels, input terminals, earphone jacks, etc.

3 ESD PRECAUSIONS

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity.
Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

(1) Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

(2) After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

(3) Use only a grounded-tip soldering iron to solder or unsolder ESD devices.

(4) Use only an anti-static solder removal devices. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESD devices.

(5) Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.

(6) Do not remove a replacement ESD device from its protective package until immediately before your are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).

(7) Immediately before removing the protective materials from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

(8) Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

4 HANDLING THE OPTICAL PICK-UP

The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

(1) Place a conductive sheet on the work bench (The black sheet used for wrapping repair parts.)

(2) Place the set on the conductive sheet so that the chassis is grounded to the sheet.

(3) Place your hands on the conductive sheet(This gives them the same ground as the sheet.)

(4) Remove the optical pick up block

(5) Perform work on top of the conductive sheet. Be careful not to let your clothes or any other static sources to touch the unit.

- Be sure to put on a wrist strap grounded to the sheet.
- Be sure to lay a conductive sheet made of copper etc. Which is grounded to the table.

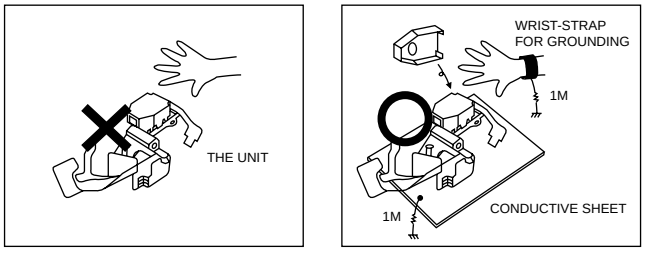


Fig.3

(6) Short the short terminal on the PCB, which is inside the Pick-Up ASS'Y, before replacing the Pick-Up. (The short terminal is shorted when the Pick-Up Ass'y is being lifted or moved.)

(7) After replacing the Pick-up, open the short terminal on the PCB.

5 PICK-UP DISASSEMBLY AND REASSEMBLY

5-1 Disassembly

1) Remove the power cord.
2) Disassemble the Deck-Assy.
3) Make solder land 2 points short on Pick-up. (See Fig. 4)
4) Disassembly the Pick-up.

5-2 Assembly

1) Replace the Pick-up.
2) Remove the soldering 2 points on Pick-up.
3) Reassemble the Deck-Assy.

Note: If the assembly and disassembly are not done in correct sequence, the Pick-up may be damaged.

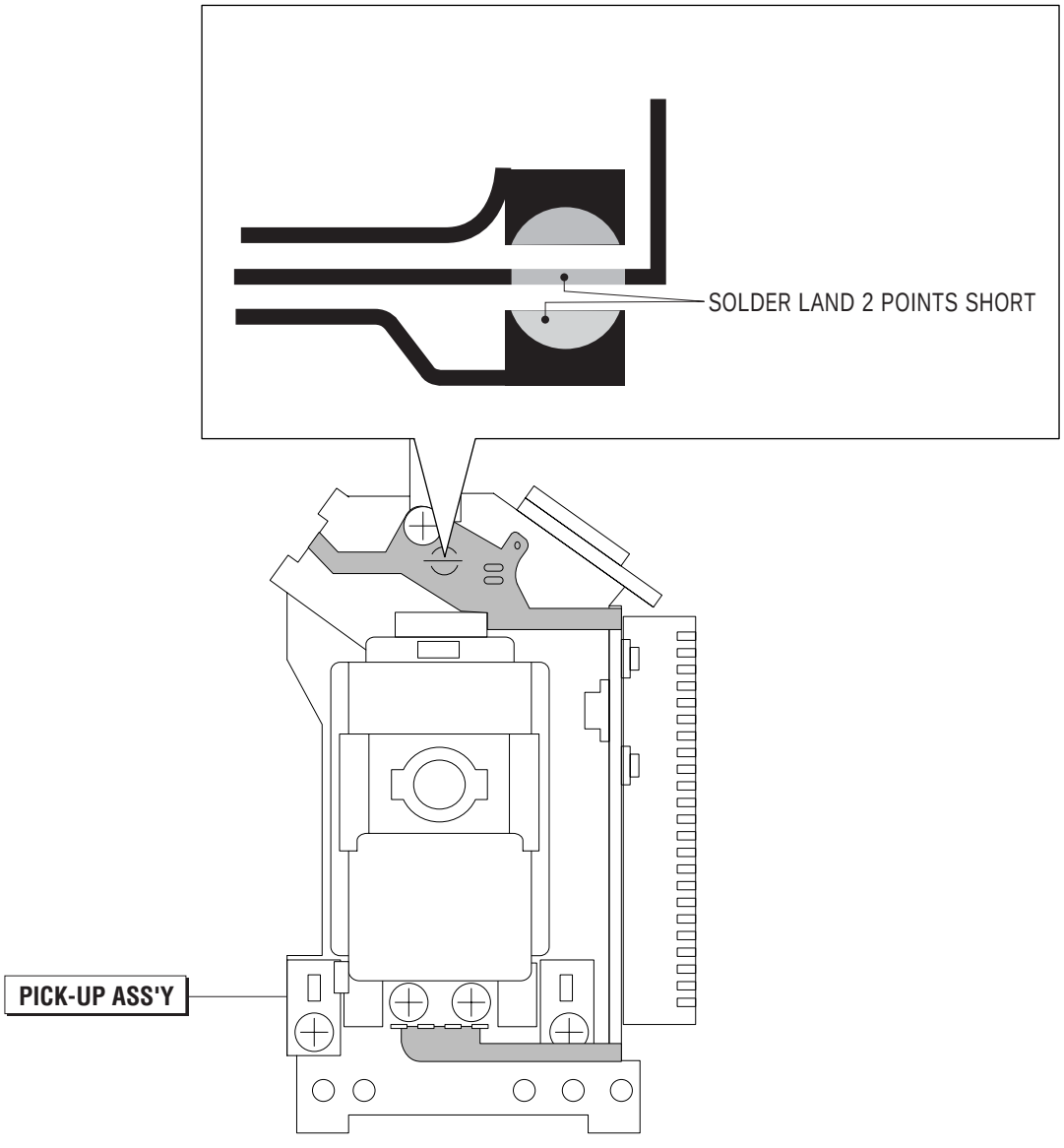
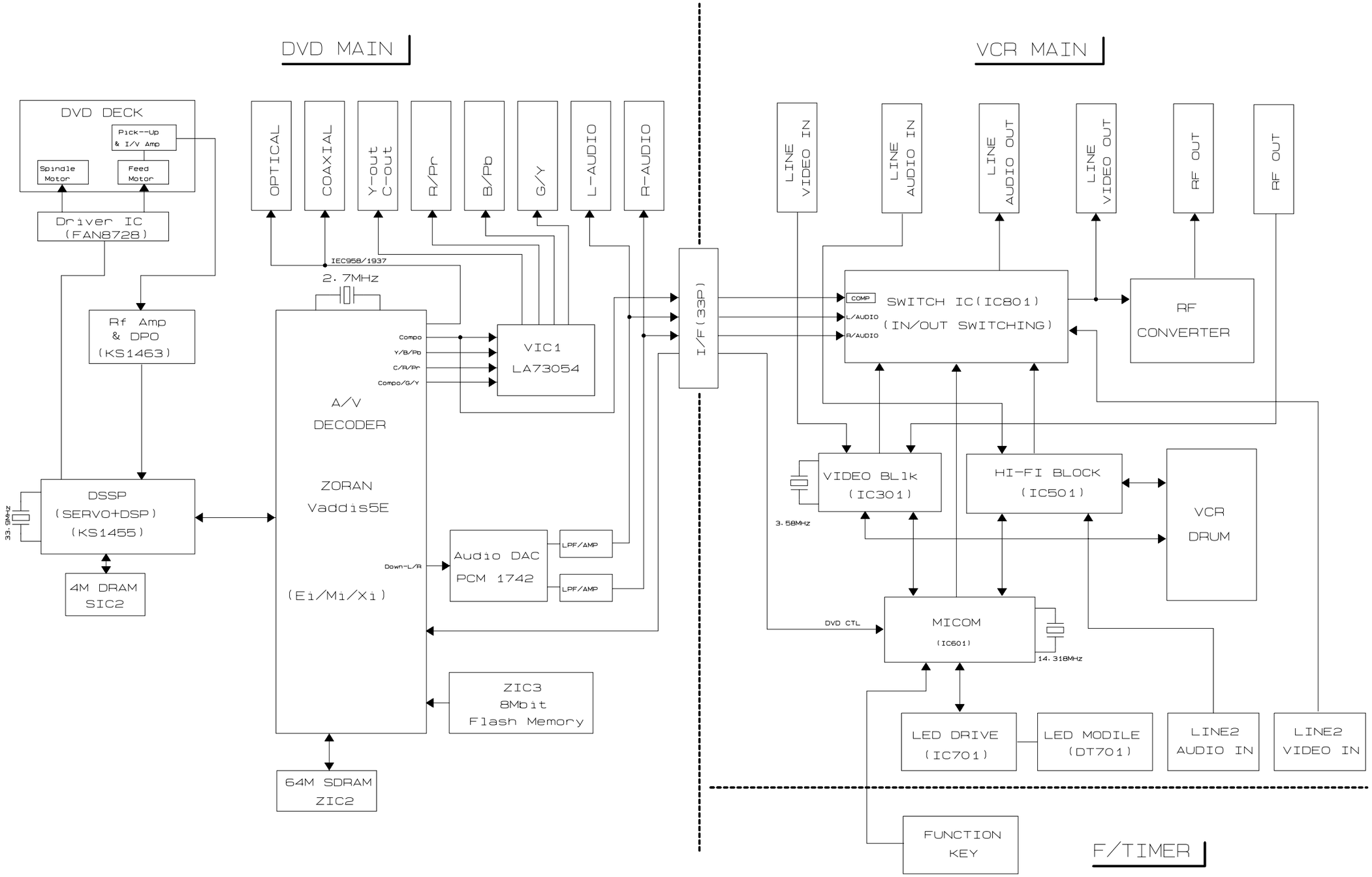


Fig. 4

MEMO

3. BLOCK DIAGRAM



MEMO

4. PCB DIAGRAMS

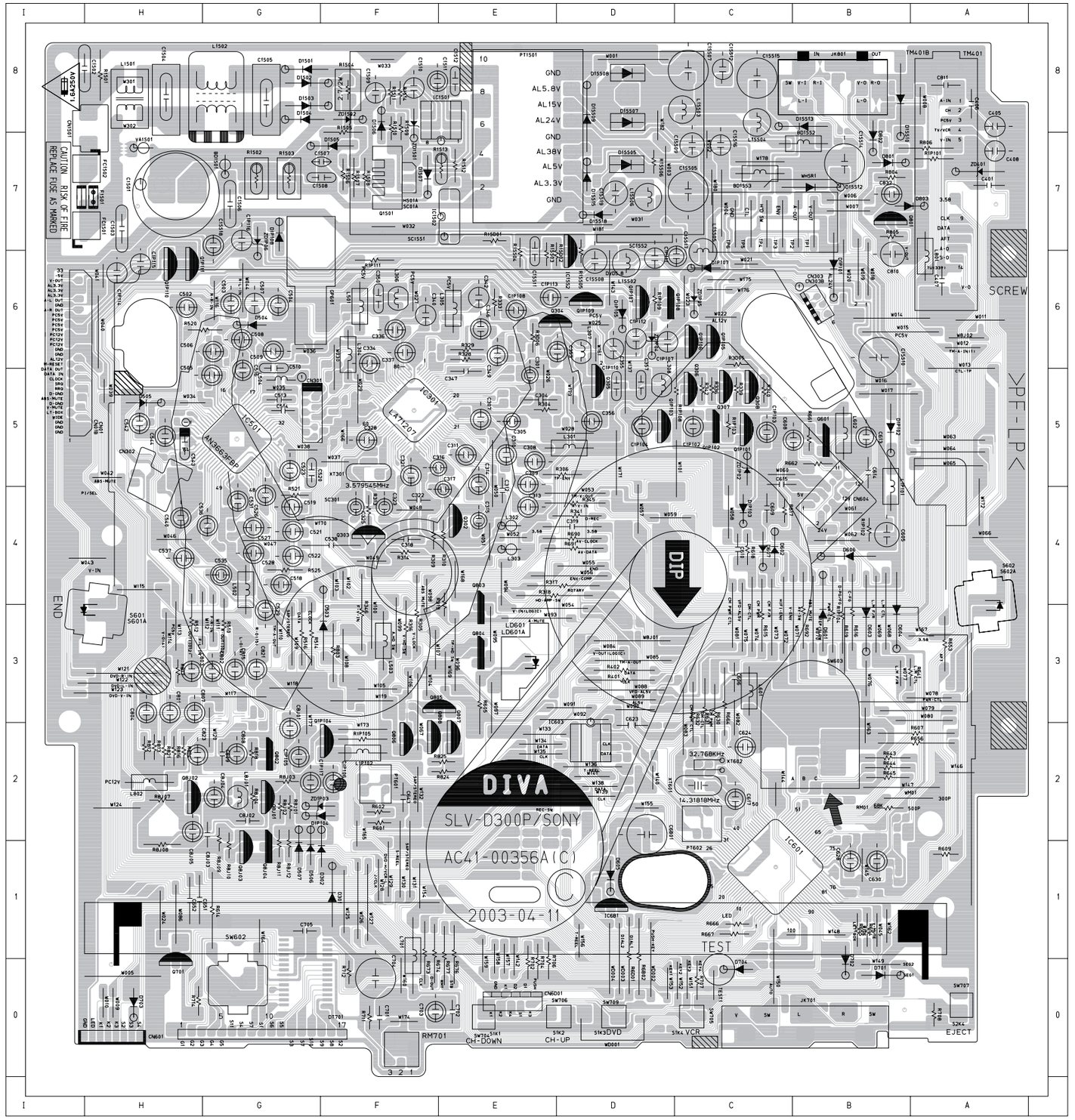
4-1 VCR Main ---------- 4-3

4-2 DVD Main ---------- 4-7

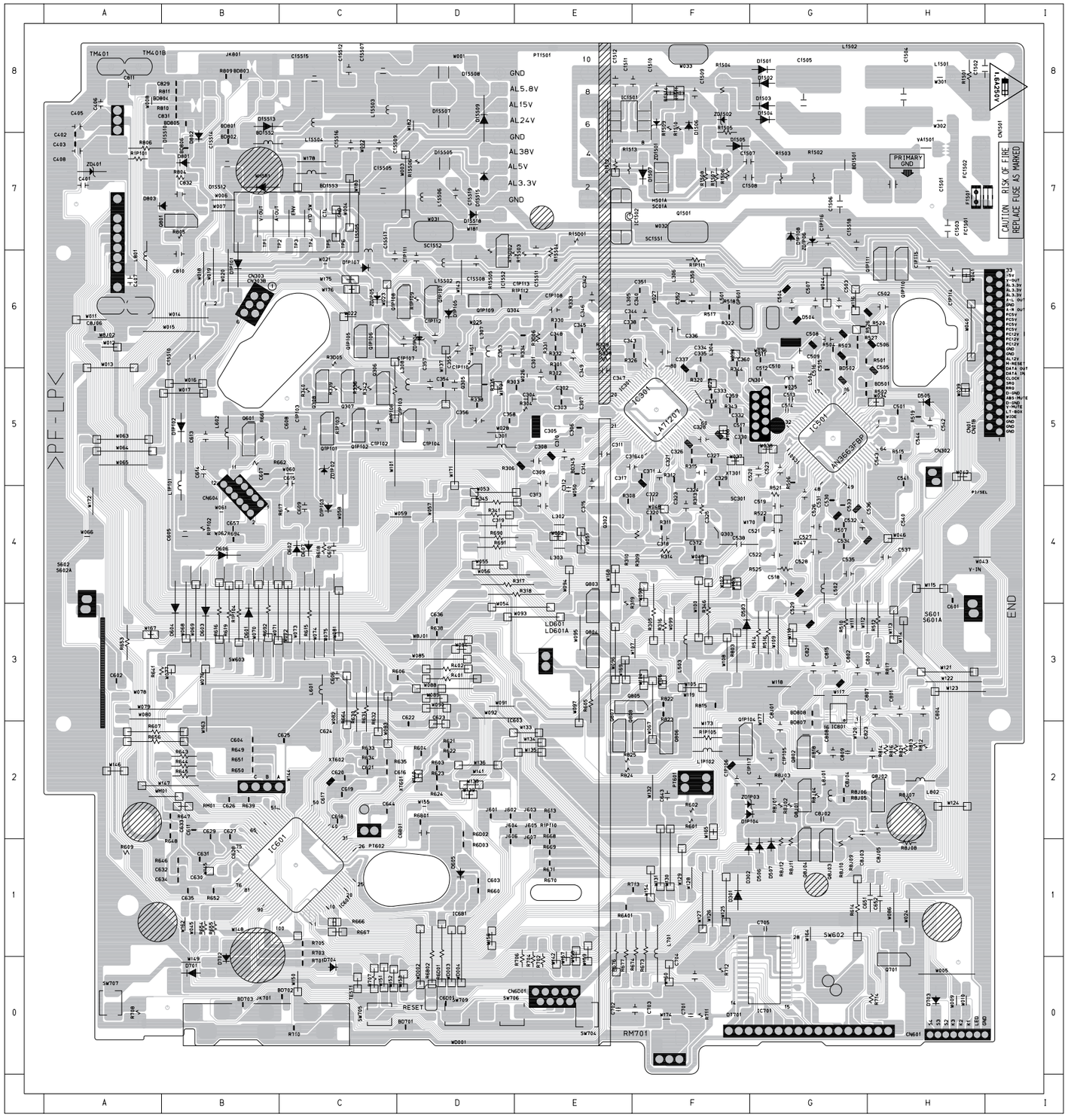
4-3 Function-Timer ---------- 4-9

4-1 VCR MAIN

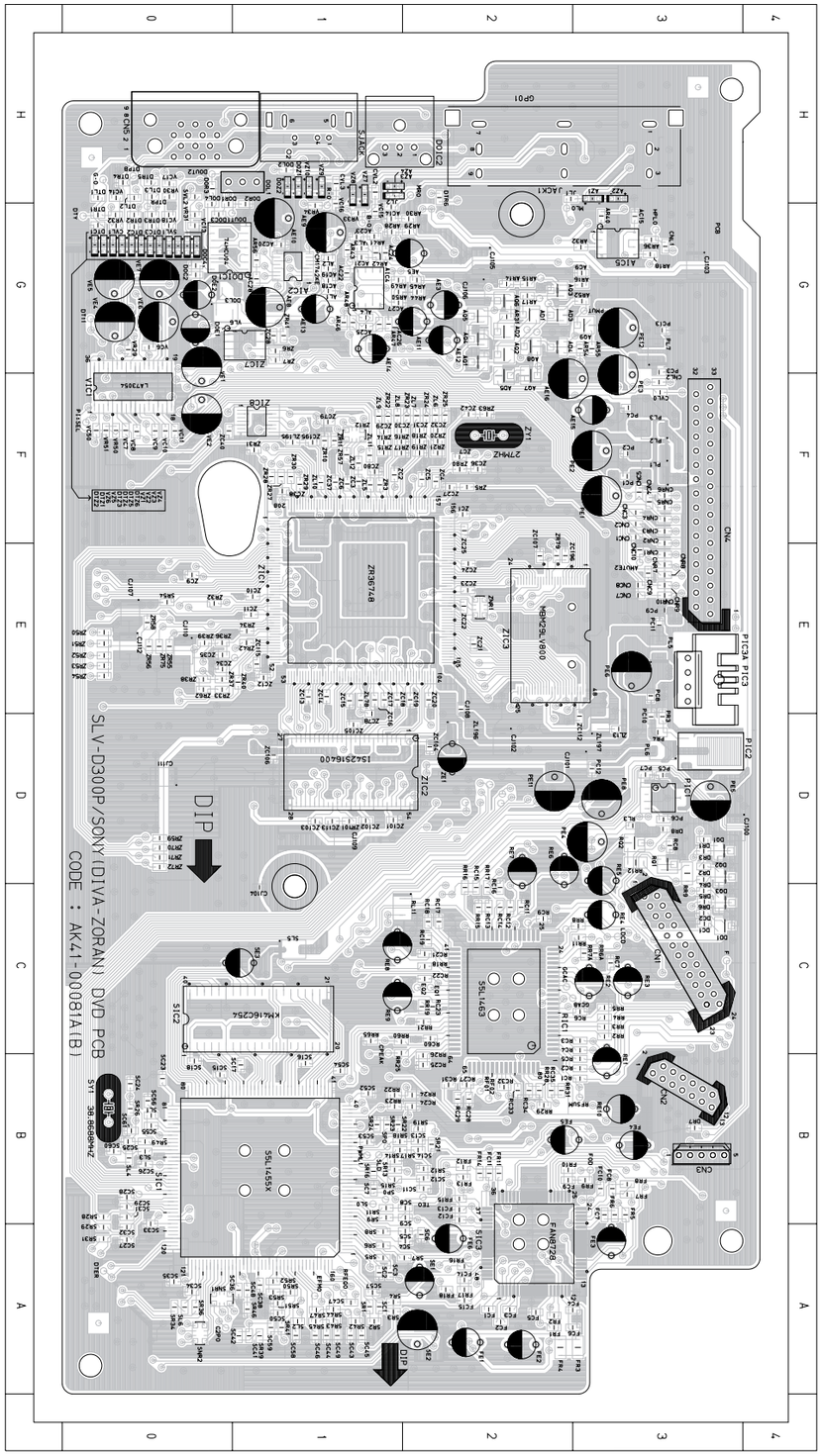
COMPONENT SIDE



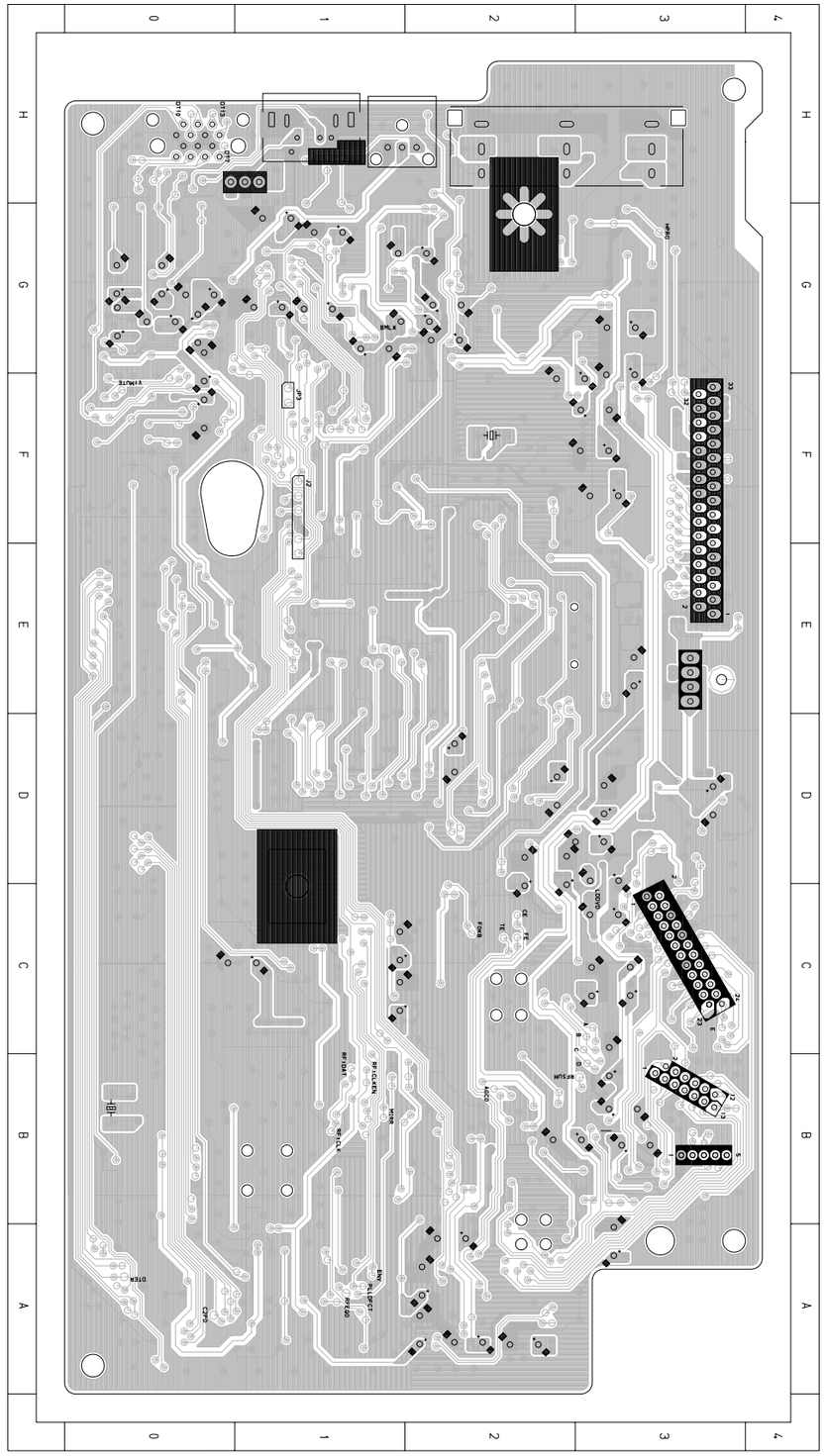
CONDUCTOR SIDE



COMPONENT SIDE

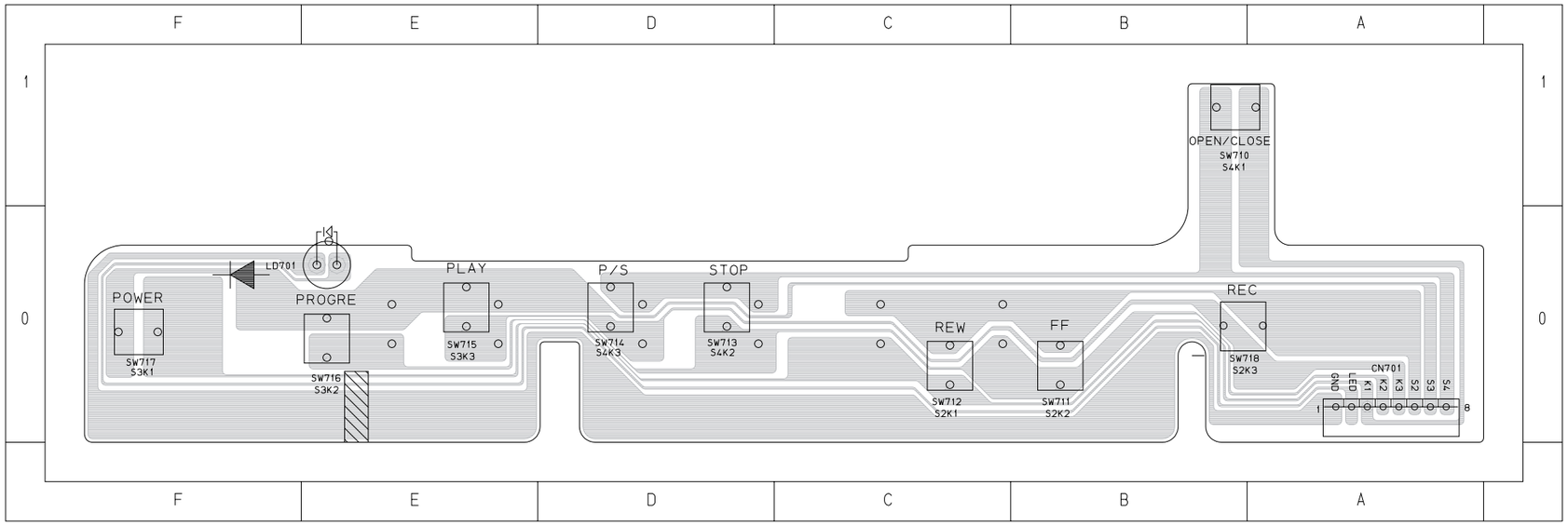


CONDUCTOR SIDE

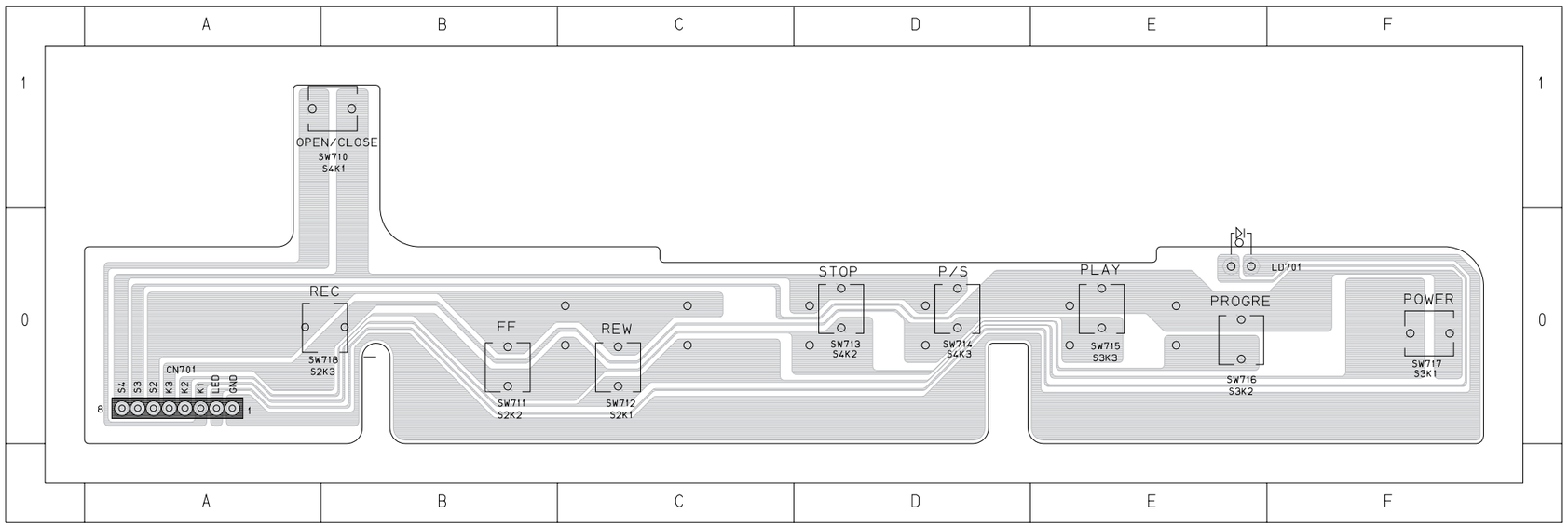


4-3 FUNCTION-TIMER

COMPONENT SIDE



CONDUCTOR SIDE



MEMO

5. SCHEMATIC DIAGRAMS

◆ Block Identification of Main PCB ---------- 5-3

VCR Main PCB

5-1 S.M.P.S. ---------- 5-5

5-2 Power Drive ---------- 5-7

5-3 Logic/Function-Time ---------- 5-9

5-4 Audio/Video ---------- 5-11

5-5 Hi-Fi/MTS ---------- 5-13

5-6 Input-Output ---------- 5-15

DVD Main PCB

5-7 DVD Main-Micom/AV Decoder ---------- 5-17

5-8 DVD Servo ---------- 5-19

5-9 DVD Audio/Video ---------- 5-21

Note

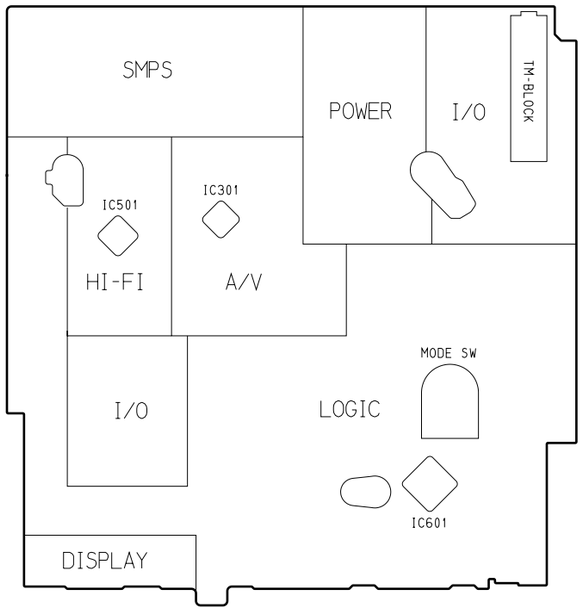
For schematic Diagram
- Resistors are in ohms, 1/8W unless otherwise noted.

Special note :
Most semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "electrostatically sensitive (ES) devices" section of this service manual.

Important safety notices :
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components.
Use only the same type.

◆ BLOCK IDENTIFICATION MAIN PCB

VCR MAIN PCB



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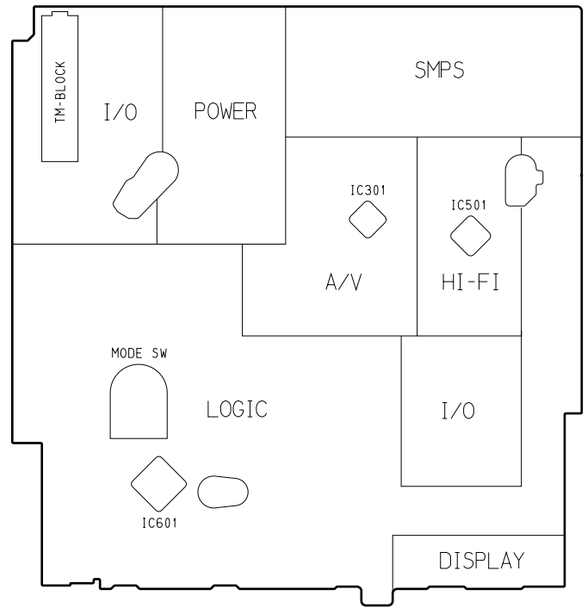

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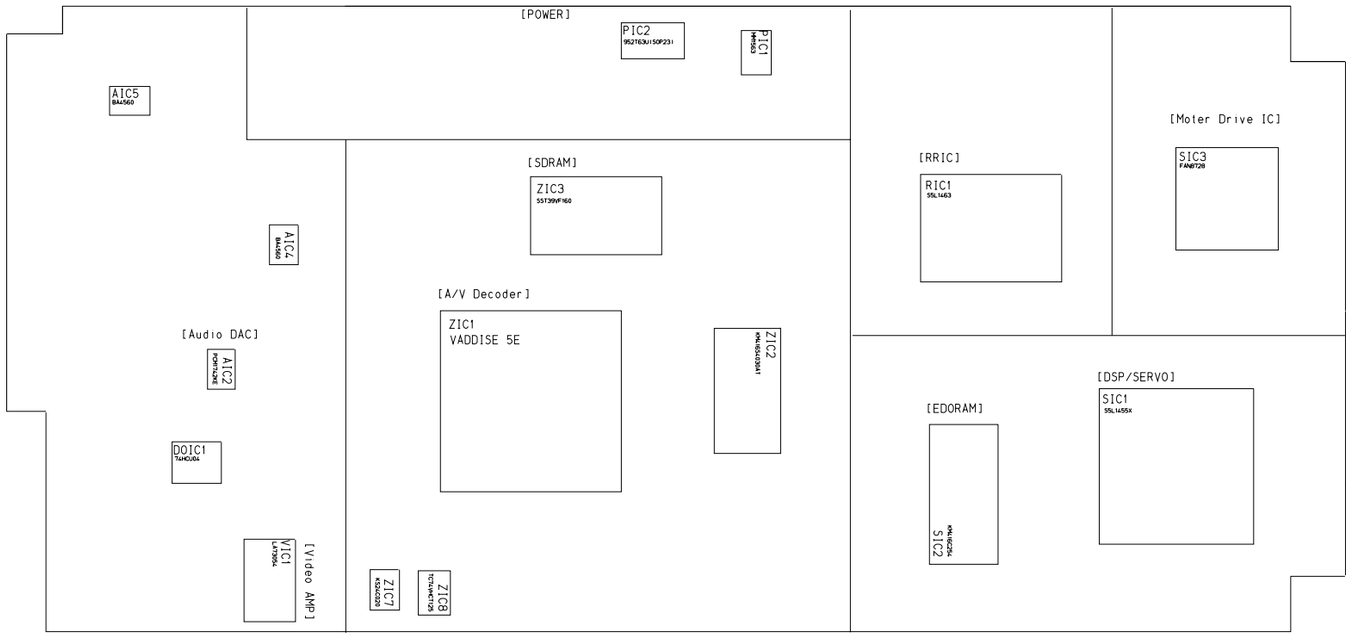
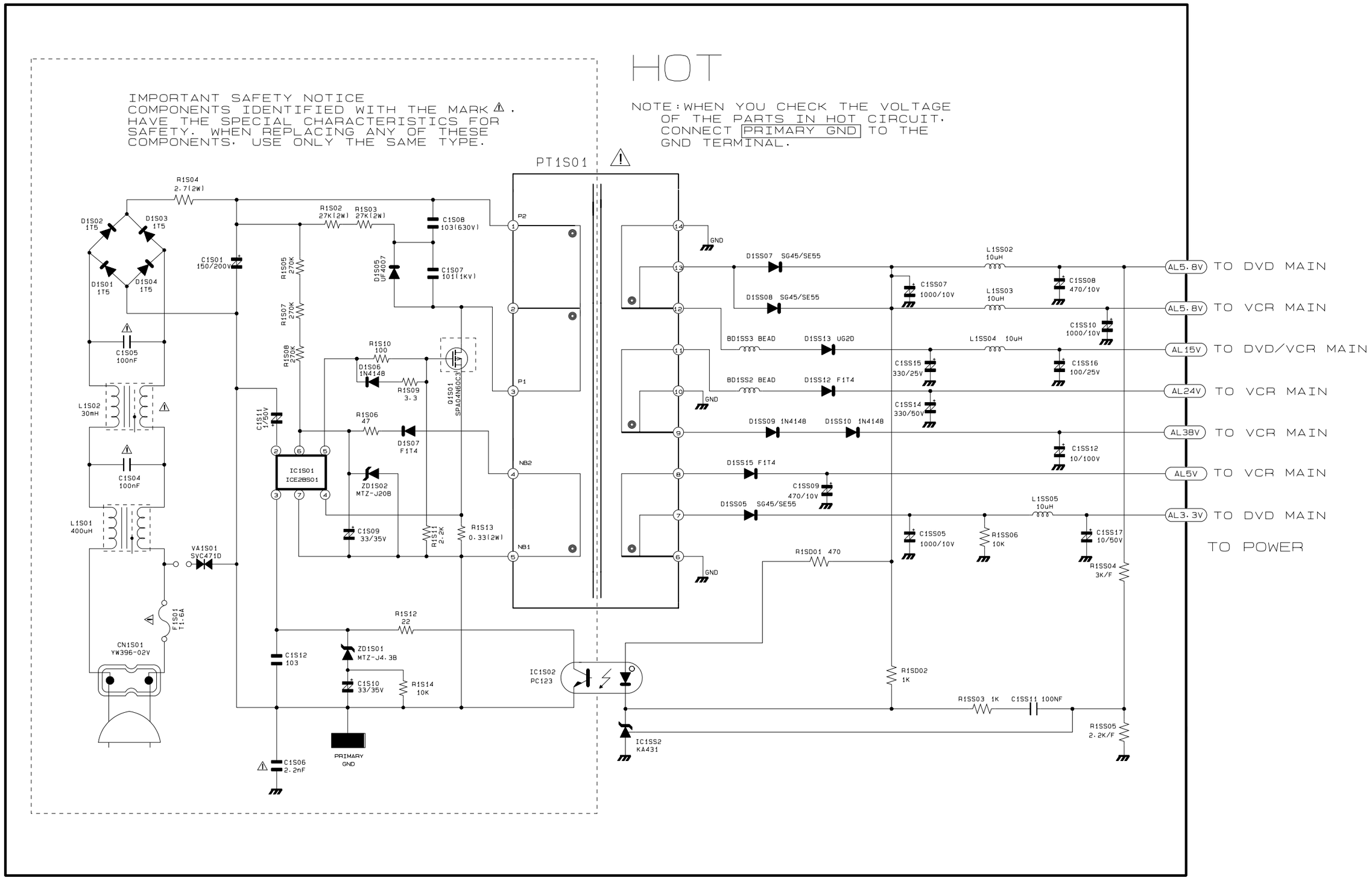
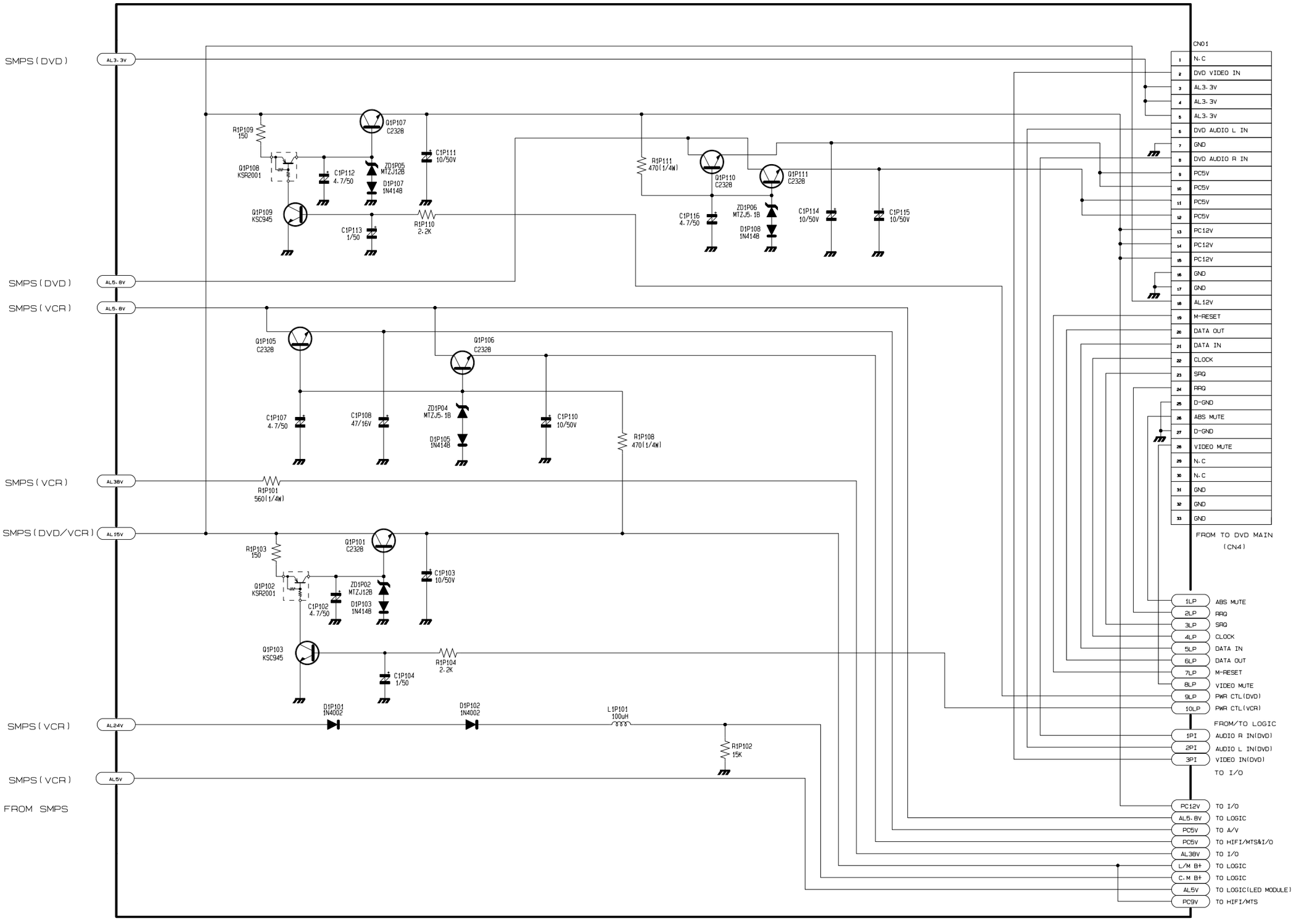
DVD MAIN PCB



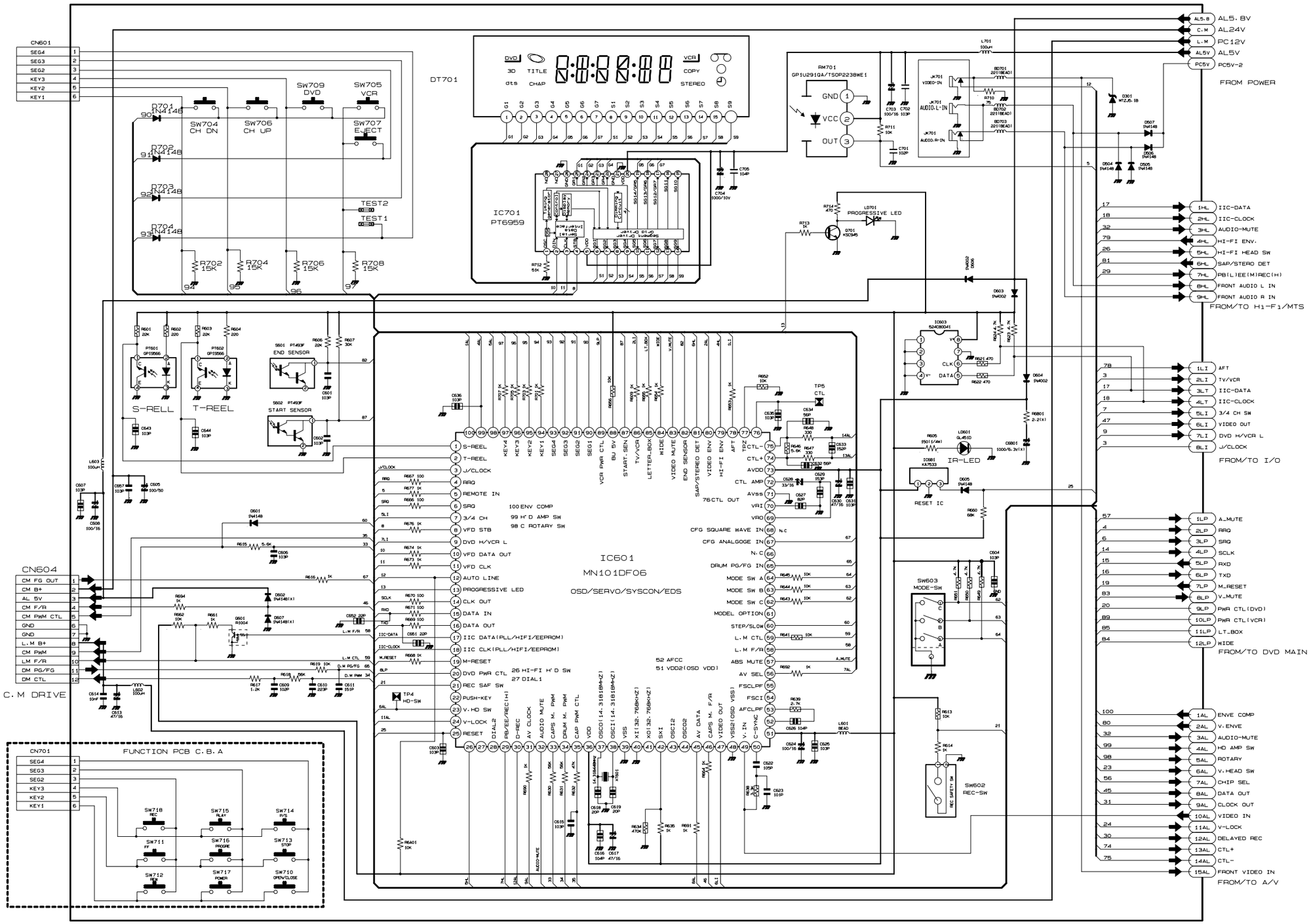
<Component Side>

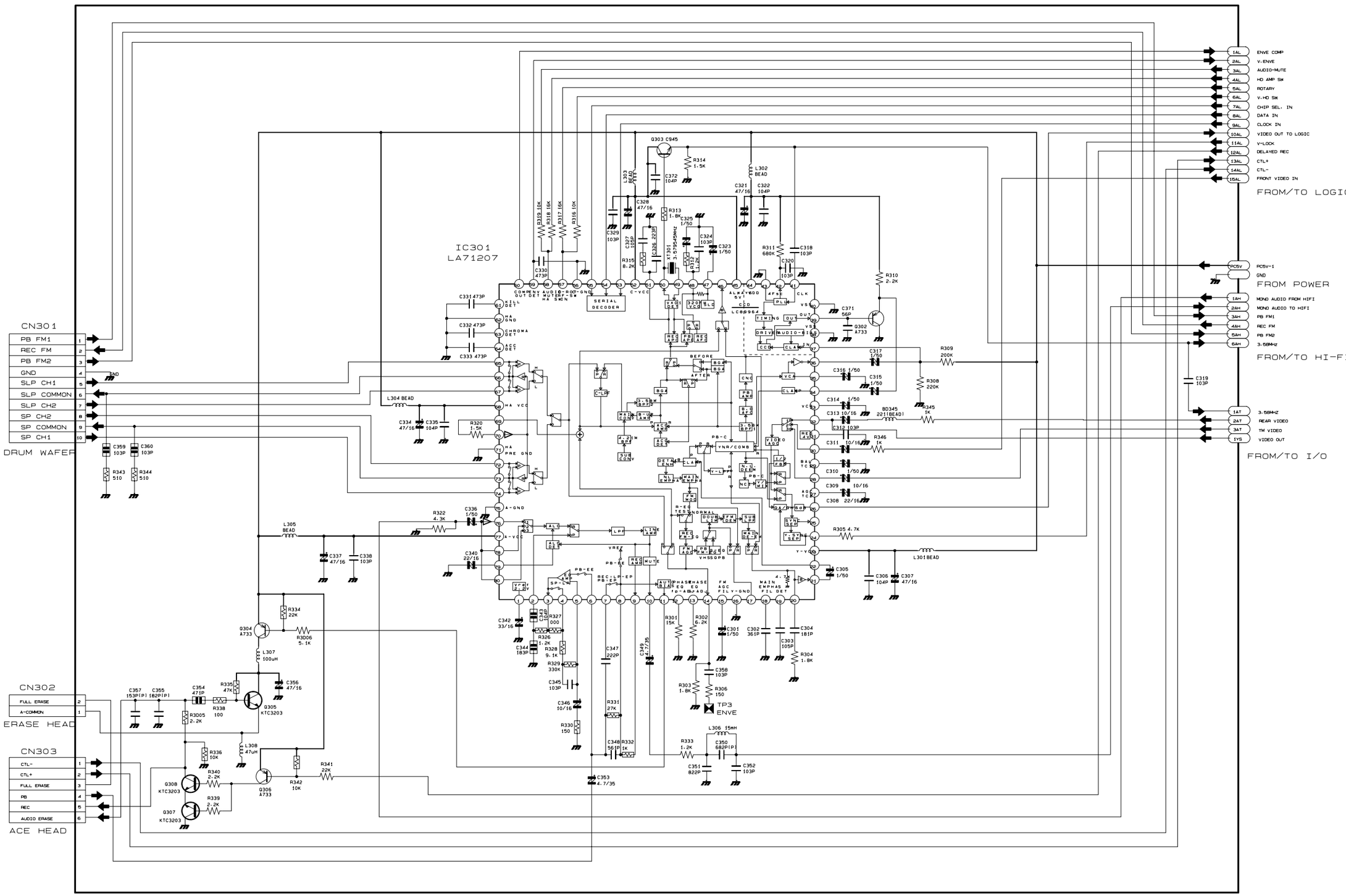

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED WITH THE MARK ⚠.
HAVE THE SPECIAL CHARACTERISTICS FOR
SAFETY. WHEN REPLACING ANY OF THESE
COMPONENTS. USE ONLY THE SAME TYPE.
HOT
NOTE:WHEN YOU CHECK THE VOLTAGE
OF THE PARTS IN HOT CIRCUIT.
CONNECT PRIMARY GND TO THE
GND TERMINAL.
PT1S01
R1S04 2.7(2W)
D1S02 1T5
D1S03 1T5
D1S01 1T5
D1S04 1T5
C1S01 150/200V
R1S02 27K(2W)
R1S03 27K(2W)
C1S08 103(630V)
C1S07 101(1KV)
D1S05 UF4007
R1S05 270K
R1S07 270K
R1S08 270K
C1S05 100nF
R1S10 100
D1S06 1N4148
R1S09 3.3
D1S01 SPA04N60C3
L1S02 30mH
C1S11 1/50V
R1S06 47
D1S07 F1T4
C1S04 100nF
IC1S01 ICE2BS01
ZD1S02 MTZ-J20B
L1S01 400uH
C1S09 33/35V
R1S11 2.2K
R1S13 0.33(2W)
VA1S01 SVC471D
F1S01 T1.6A
CN1S01 YW396-02V
R1S12 22
C1S12 103
ZD1S01 MTZ-J4.3B
C1S10 33/35V
R1S14 10K
C1S06 2.2nF
PRIMARY GND
IC1S02 PC123
IC1SS2 KA431
P2
P1
NB2
NB1
GND
D1SS07 SG45/SE55
D1SS08 SG45/SE55
L1SS02 10uH
L1SS03 10uH
C1SS07 1000/10V
C1SS08 470/10V
C1SS10 1000/10V
BD1SS3 BEAD
D1SS13 UG2D
L1SS04 10uH
C1SS15 330/25V
C1SS16 100/25V
BD1SS2 BEAD
D1SS12 F1T4
C1SS14 330/50V
D1SS09 1N4148
D1SS10 1N4148
C1SS12 10/100V
D1SS15 F1T4
C1SS09 470/10V
D1SS05 SG45/SE55
L1SS05 10uH
C1SS05 1000/10V
R1SS06 10K
C1SS17 10/50V
R1SD01 470
R1SS04 3K/F
R1SD02 1K
R1SS03 1K
C1SS11 100NF
R1SS05 2.2K/F
AL5.8V TO DVD MAIN
AL5.8V TO VCR MAIN
AL15V TO DVD/VCR MAIN
AL24V TO VCR MAIN
AL38V TO VCR MAIN
AL5V TO VCR MAIN
AL3.3V TO DVD MAIN
TO POWER

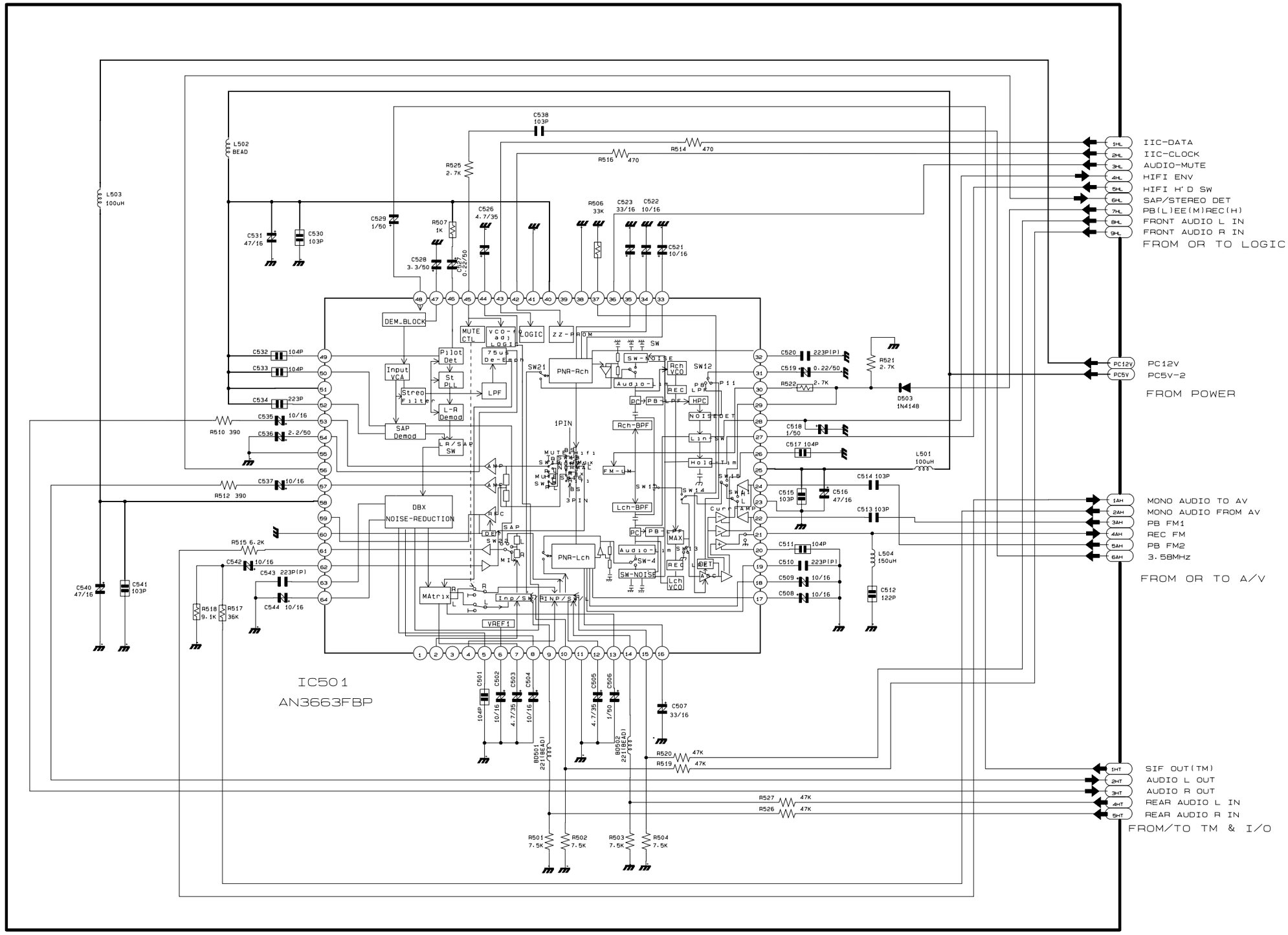
5-2 POWER DRIVE



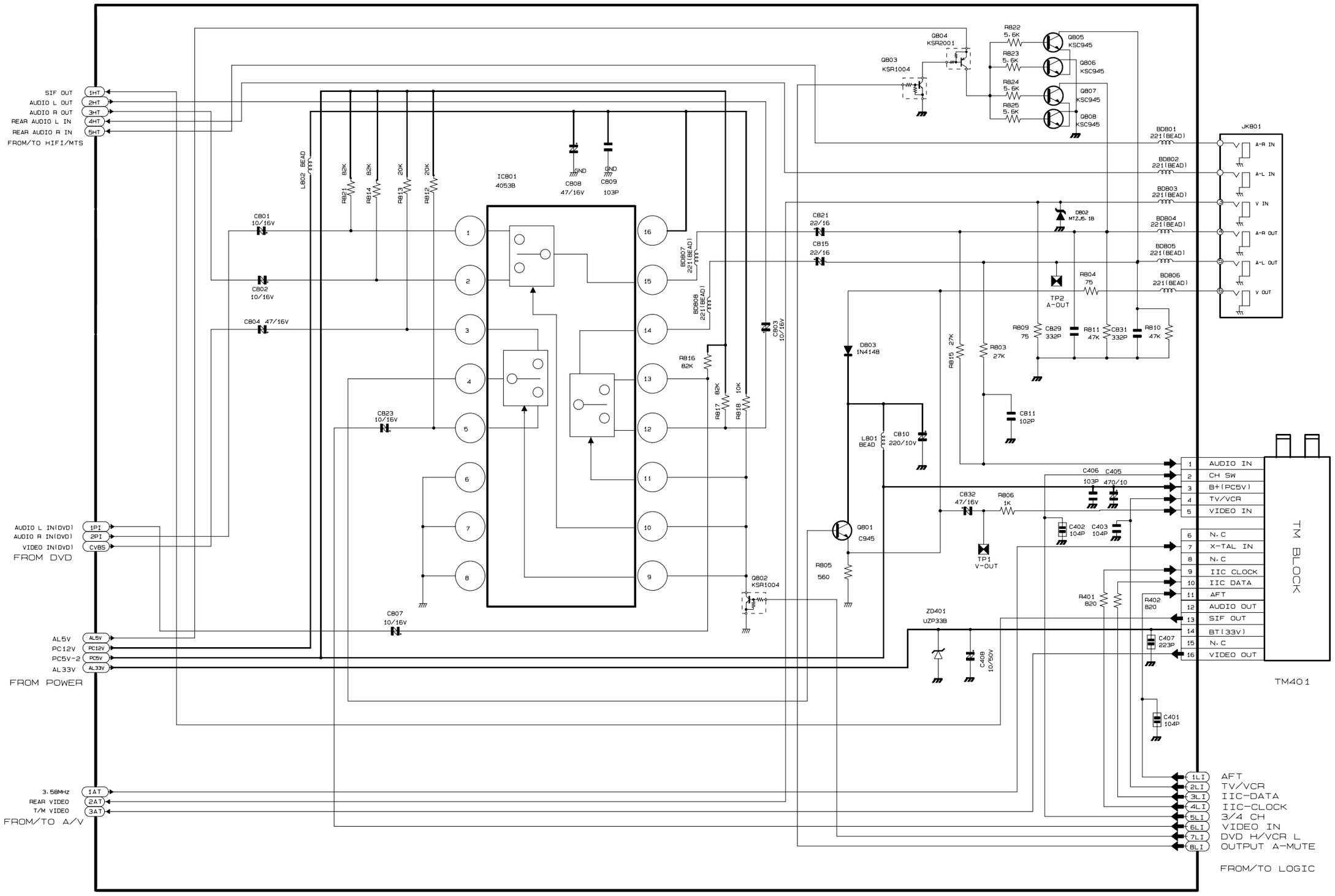
5-3 LOGIC/FUNCTION-TIMER



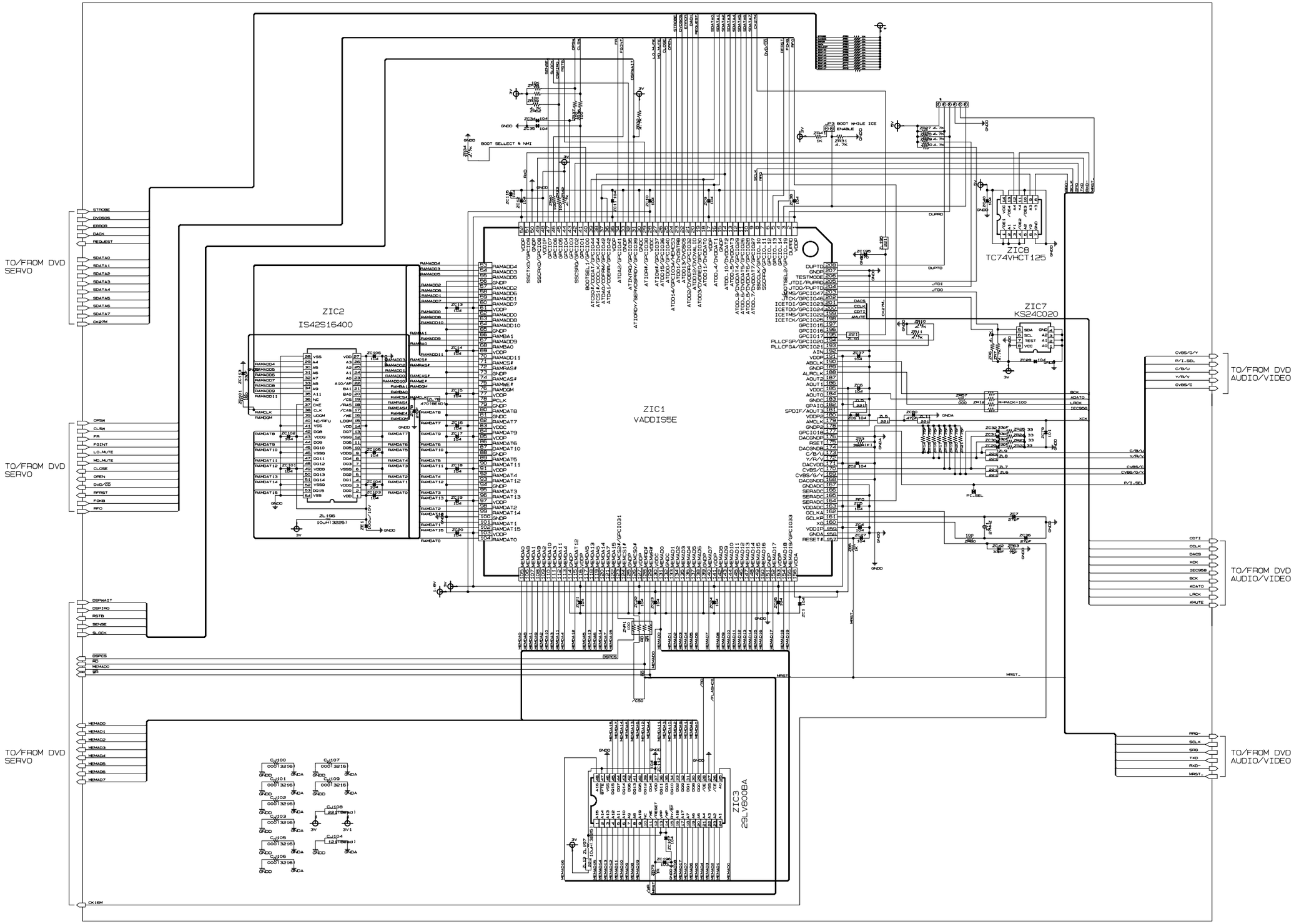

IC301
LA71207
CN301
PB FM1
REC FM
PB FM2
GND
SLP CH1
SLP COMMON
SLP CH2
SP CH2
SP COMMON
SP CH1
DRUM WAFER
CN302
FULL ERASE
A-COMMON
ERASE HEAD
CN303
CTL-
CTL+
FULL ERASE
PB
REC
AUDIO ERASE
ACE HEAD
ENVE COMP
V.ENVE
AUDIO-MUTE
HD AMP SW
ROTARY
V.HD SW
CHIP SEL. IN
DATA IN
CLOCK IN
VIDEO OUT TO LOGIC
V-LOCK
DELAYED REC
CTL+
CTL-
FRONT VIDEO IN
FROM/TO LOGIC
PC5V-1
GND
FROM POWER
MONO AUDIO FROM HIFI
MONO AUDIO TO HIFI
PB FM1
REC FM
PB FM2
3.58M-Z
FROM/TO HI-FI
3.58M-Z
REAR VIDEO
TM VIDEO
VIDEO OUT
FROM/TO I/O
TP3
ENVE

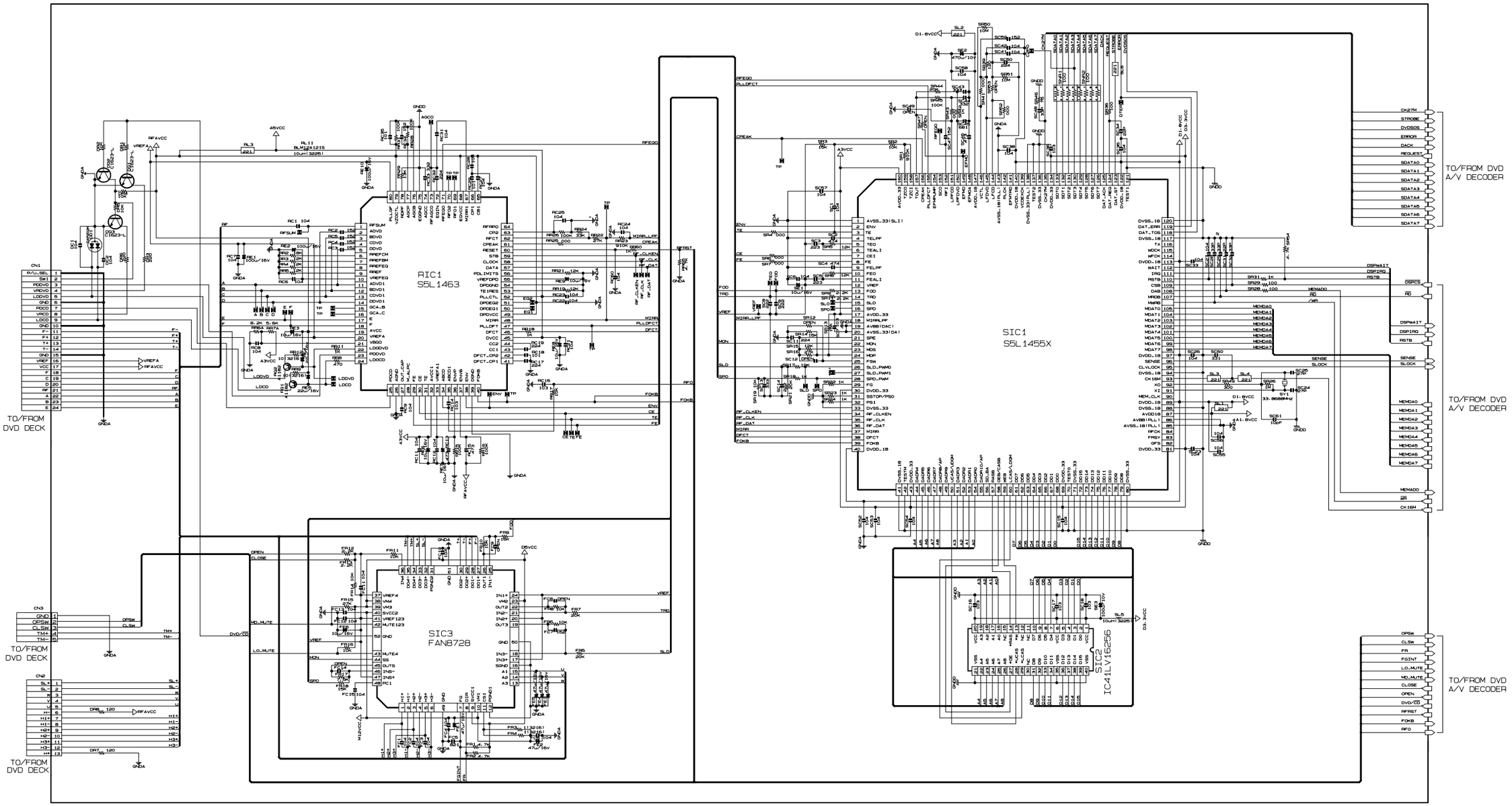

IIC-DATA
IIC-CLOCK
AUDIO-MUTE
HIFI ENV
HIFI H'D SW
SAP/STEREO DET
PB(L)EE(M)REC(H)
FRONT AUDIO L IN
FRONT AUDIO R IN
FROM OR TO LOGIC
PC12V
PC5V-2
FROM POWER
MONO AUDIO TO AV
MONO AUDIO FROM AV
PB FM1
REC FM
PB FM2
3.58MHz
FROM OR TO A/V
SIF OUT(TM)
AUDIO L OUT
AUDIO R OUT
REAR AUDIO L IN
REAR AUDIO R IN
FROM/TO TM & I/O
IC501
AN3663FBP
DEM_BLOCK
MUTE CTL
LOGIC
ZZ-PROM
Pilot Det
Input VCA
Stereo Filter
SAP Demod
L-R Demod
LPF
PNR-Rch
PNR-Lch
SW-NOISE
Rch VCO
Lch VCO
Audio-1
Audio-2
SW-4
REC
PC
PB
HPC
NOISE DET
Rch-BPF
Lch-BPF
FM-LM
Hold Time
Current Amp
DBX NOISE-REDUCTION
MAtrix
Inp/SW
VREF1
SAP
L502 BEAD
L503 100uH
L501 100uH
L504 150uH
D503 1N4148

5-6 INPUT-OUTPUT

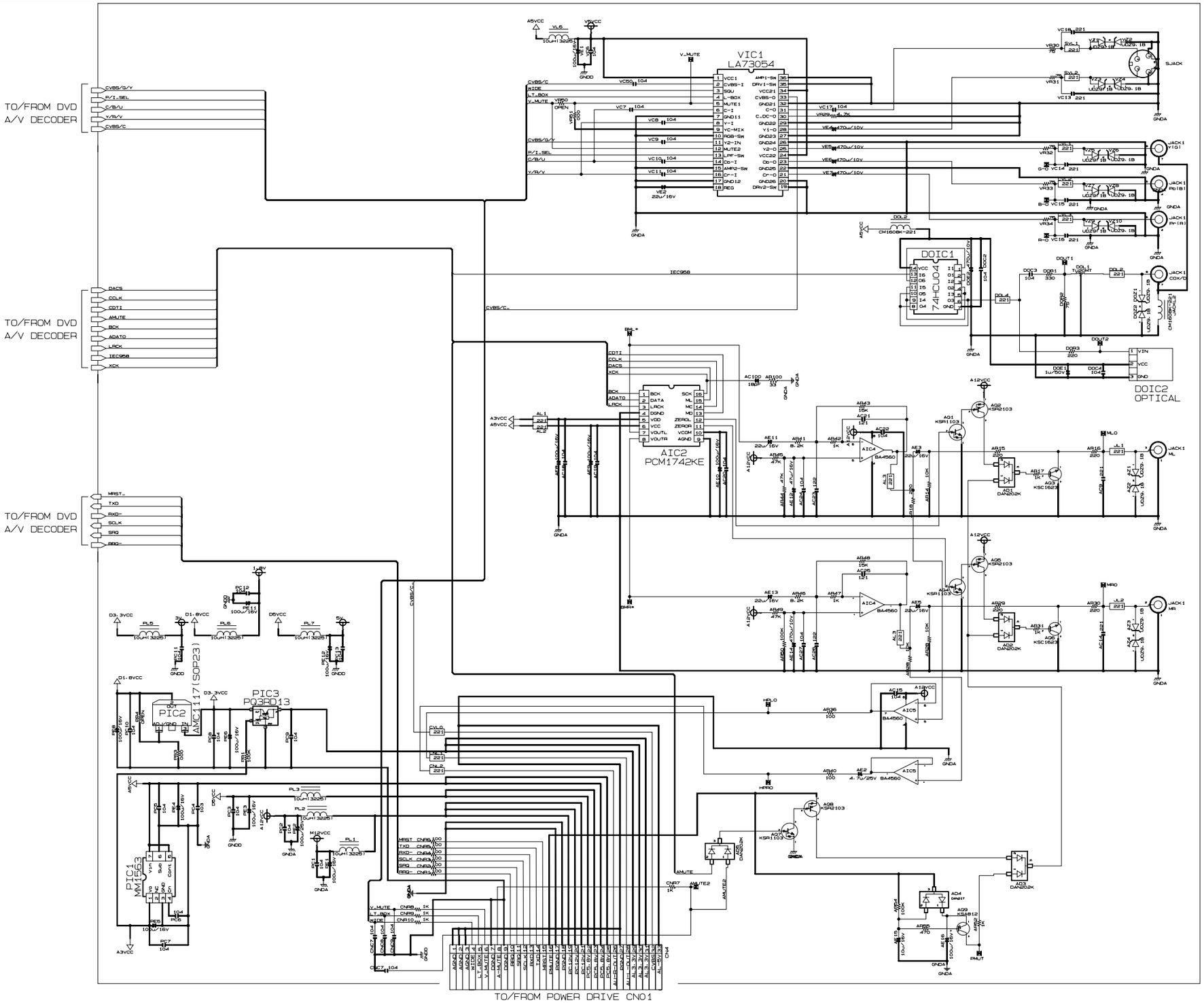


5-7 DVD MAIN-MICON/AV DECORDER




RIC1
S5L1463
SIC1
S5L1455X
SIC3
FAN8728
SIC2
IC41LV16256
TO/FROM DVD DECK
TO/FROM DVD A/V DECODER
CN1
CN2
CN3

5-9 DVD AUDIO/VIDEO



MEMO

6. ALIGNMENT AND ADJUSTMENTS

6-1 VCR ADJUSTMENT

6-1-1 Reference

1) X-Point (Tracking center) adjustment, “Head switching adjustment” and “NVRAM option setting” can be adjusted with remote control.
2) When replacing the Main PCB Micom (IC601) and NVRAM (IC603 ; EEPROM) be sure to adjust the “Head switching adjustment” and “NVRAM option setting”.
3) When replacing the cylinder ass’y, be sure to adjust the “X-Point” and “Head switching adjustment”.
4) How to adjustment.
   - Intermittently short-circuit the Test Point on Main PCB with pincers to the adjustment mode.
   - If the corresponding adjustment button is pressed, the adjustment is performed automatically.
   - If the adjustment is completed, be sure to turn the power off.

6-1-1(a) Location of adjustment button of remote control

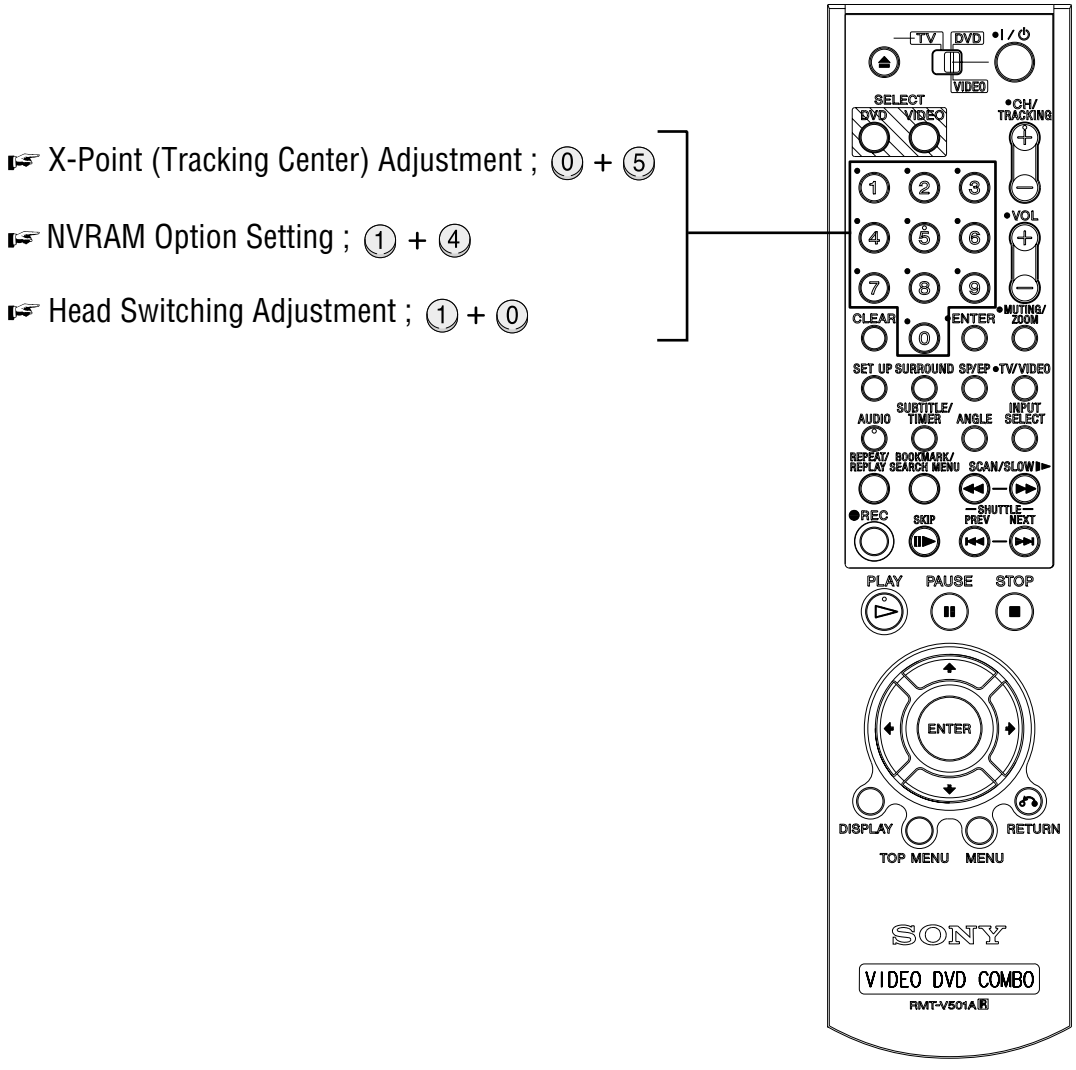


Fig. 6-1

6-1-1(b) TEST location for adjustment mode setting

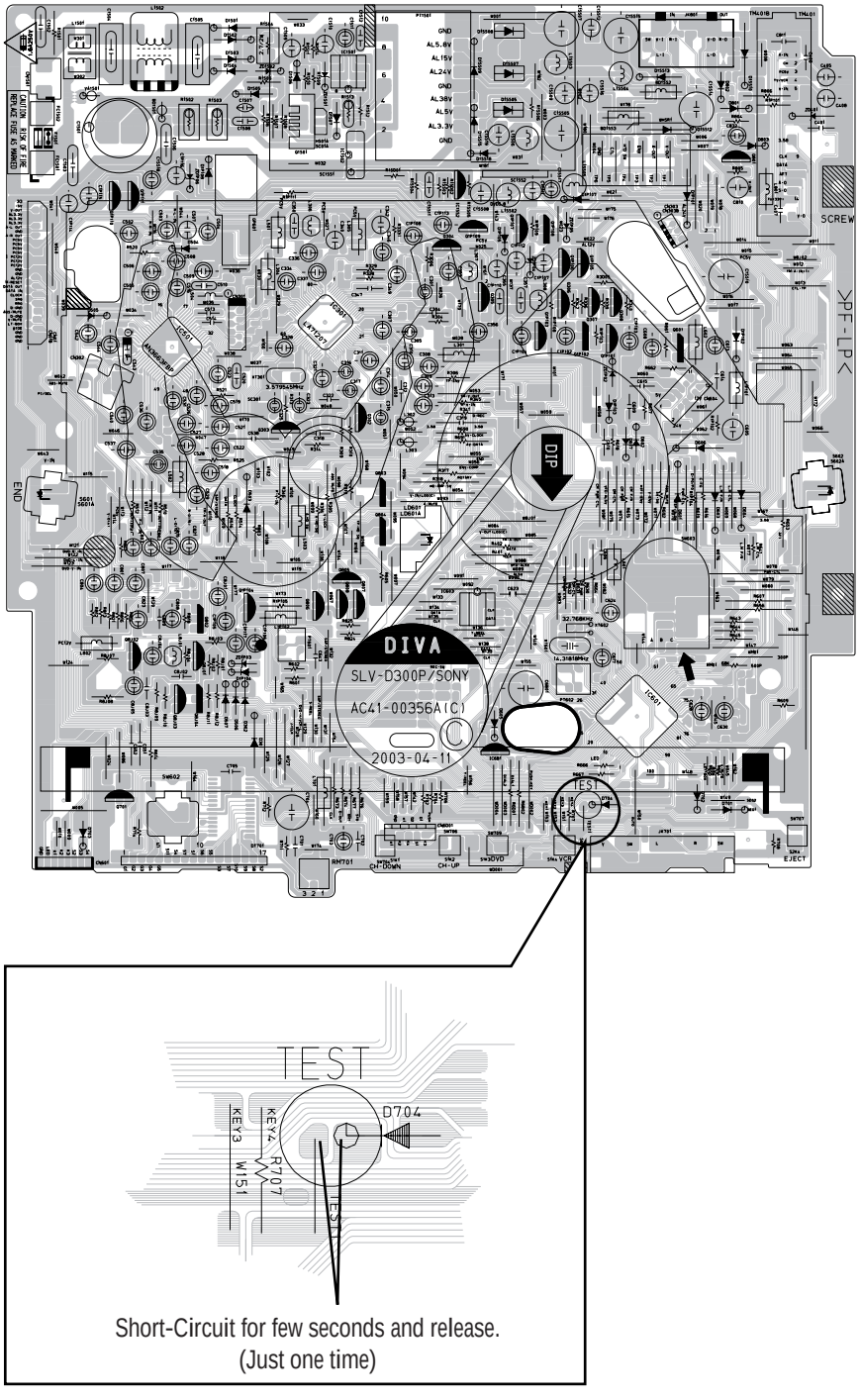


Fig. 6-2 Main PCB (Top View)

6-1-2 Head Switching Point Adjustment

1) Playback the alignment tape.
2) Intermittently short-circuit the two Test Points on Main PCB while setting the adjustment mode. (See Fig. 6-2)
3) Press the “1, 0” buttons ; remote control adjustment operates automatically. (See Fig. 6-1)

6-1-3 NVRAM Option Setting

1) NVRAM Option is adjusted in the factory.
2) In case Main PCB Micom (IC601) and NVRAM (IC603 ; EEPROM) are replaced, be sure to set the corresponding option number of the required model. (If the option is not set, the unit will not operate)

1) Intermittently short-circuit the two Test Points on Main PCB. (See Fig. 6-2)
2) Press the “1, 4” buttons on the remote control, then option setting appears. (See Fig. 6-3)
3) Select the option number (See table 6-1) of corresponding model with “◀, ▶, ▲, ▼” buttons on the remote control.
4) After selecting the option number is completed, press the “▲” button of remote control.
(If “▲” button is pressed, the selected number is changescolor. ; See Fig. 6-4)
5) Press the “ENTER” button of remote control again to store the option number.
6) Turn the Power off.

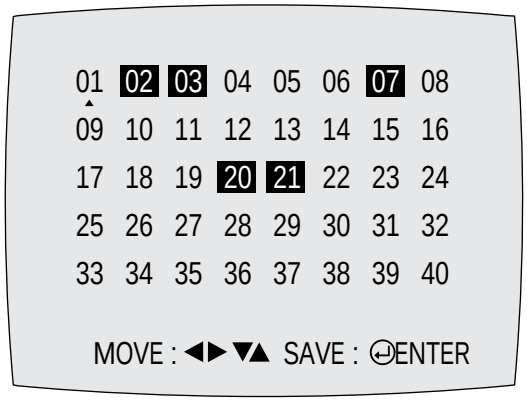


Fig. 6-3

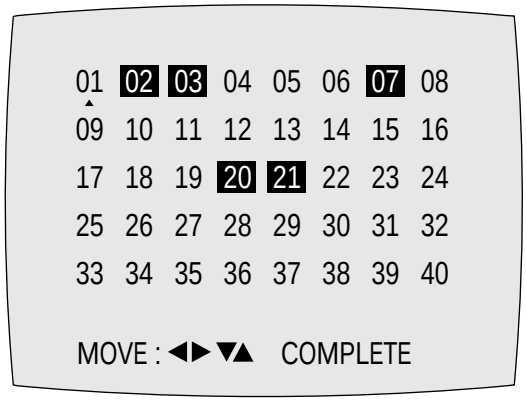


Fig. 6-4

<Table 6-1 NVRAM Option Table>

MODEL	OPTION NUMBER
SLV-D300P	2, 3, 7, 20, 21

6-2 DVD ADJUSTMENT

6-2-1 Location of Test Point

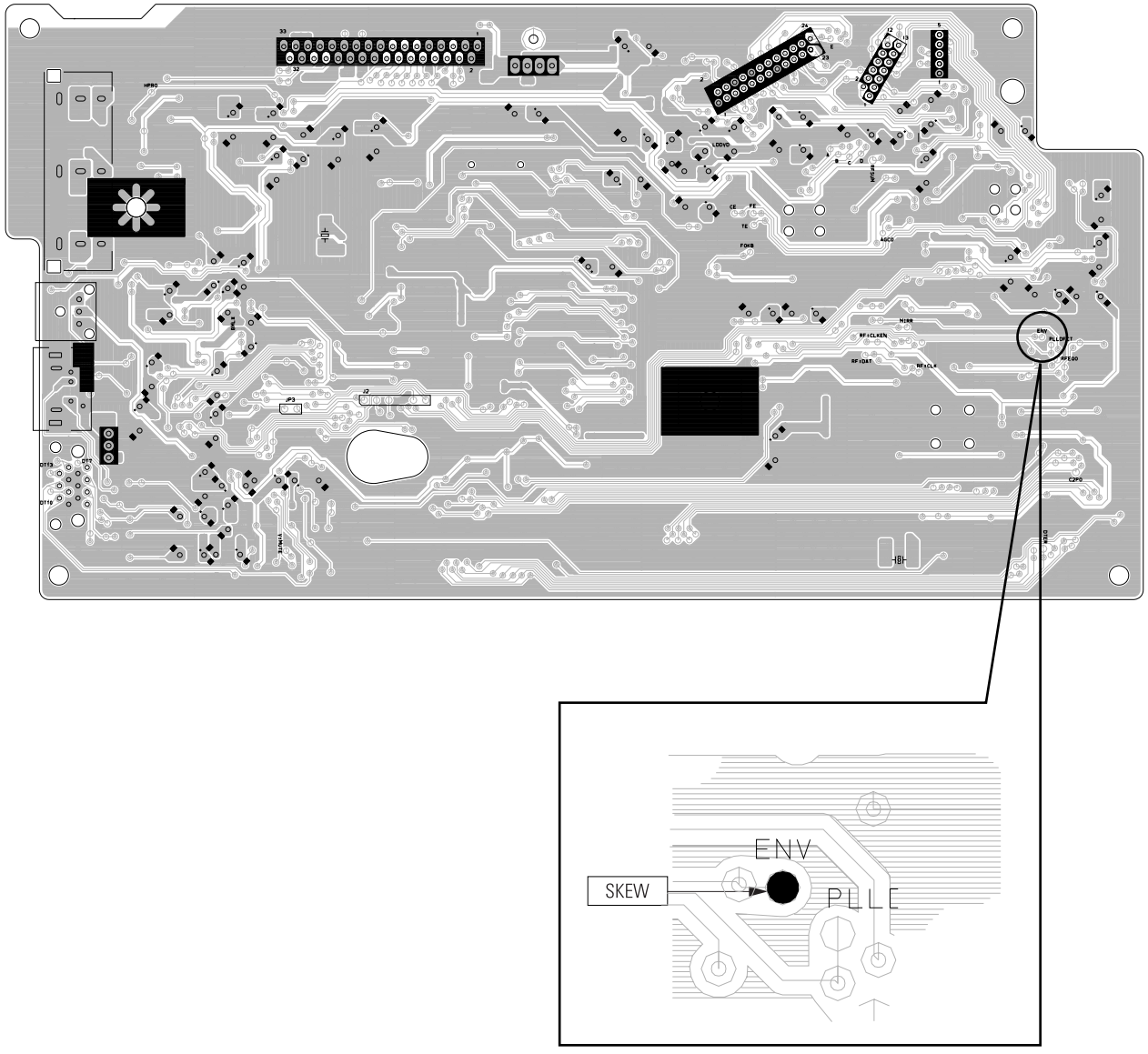


Fig. 6-5 Location of test Point (Main PCB - Top Side)

6-2-2 Skew Adjustment

6-2-2(a) Adjustment Spec. and Test Point

< Table 6-2 > ◆ Test Disc; Service not Available

Test Disc	Adjustment Spec.	Test Point	Adjustment Location
TDV-533 Chapter 14	Flat Waveform	"ENV" (DVD Main PCB - Top Side) (See Fig. 6-5)	Ass'y Deck - Top Side (See Fig. 6-6)

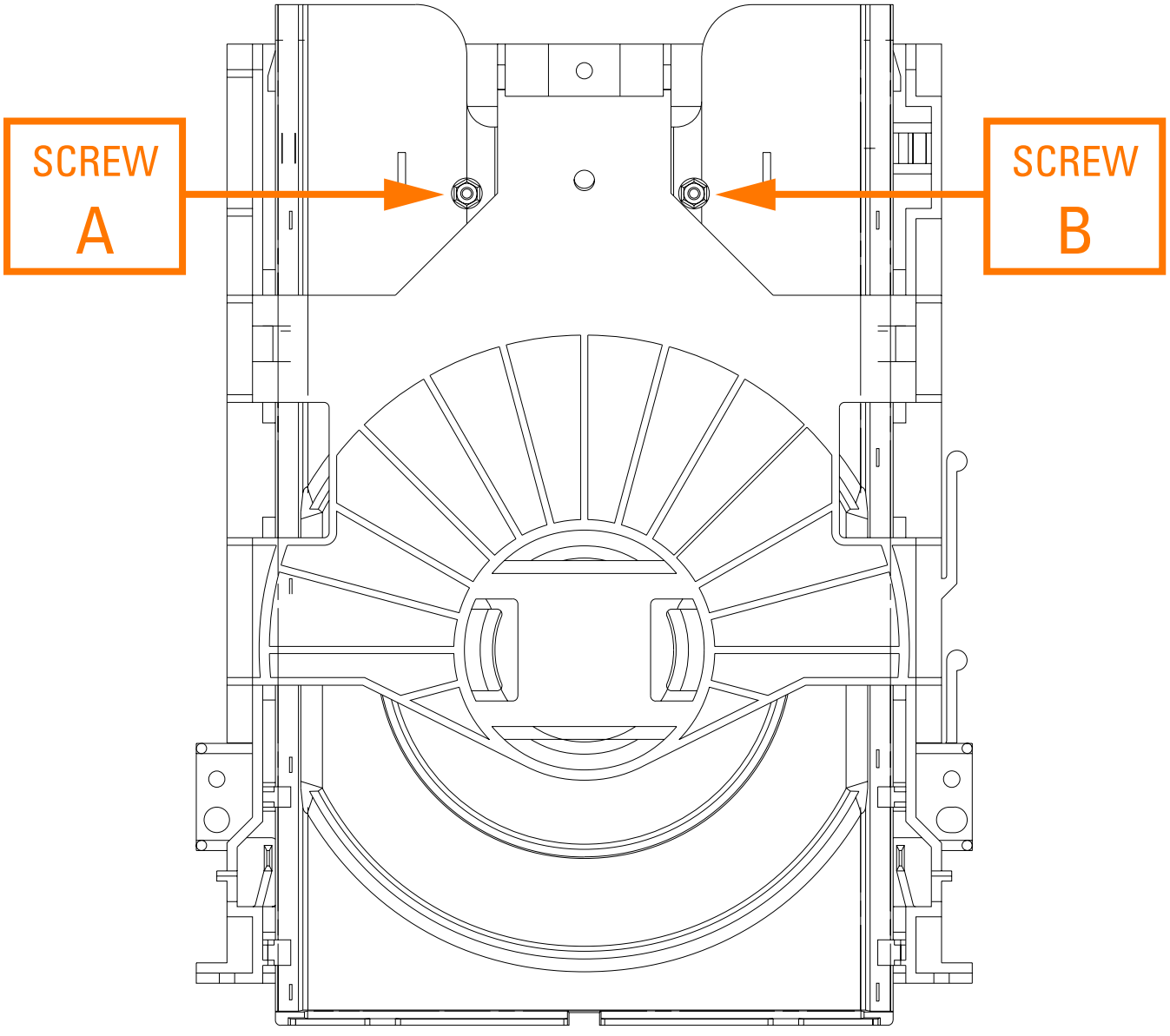


Fig. 6-6 Ass'y Deck (Top Side)

6-2-2(b) SKEW Adjustment Method

Needed to minimize the variations in Skew of the Pickup unit and to provide optimum match with the recorded signal on the Disc.

1) Connect an Oscilloscope to the “ENV” Test Point (See Fig. 6-5).
2) Connect Power, Open the Tray and Play the TDV-533 Disc, Chapter 14.
   - ◆ Set the Oscilloscope Range as follows :
     (Voltage ; 50mV/Div., Frequency ; 10m Sec.)
3) Adjust the Screws “A” and “B” (See Fig. 6-6) using a Hex screwdriver until you obtain a Flat Waveform and the picture is stable.
   Then, go to Chapter 1 and make sure the Waveform is Flat here as well.
   If not, you have to go back to Chapter 14 and adjust again.
   If you cannot obtain a Flat waveform, then the unit is defective.

Note: The Deck must be in a horizontal position. Use both “A” and “B” screws to adjust.

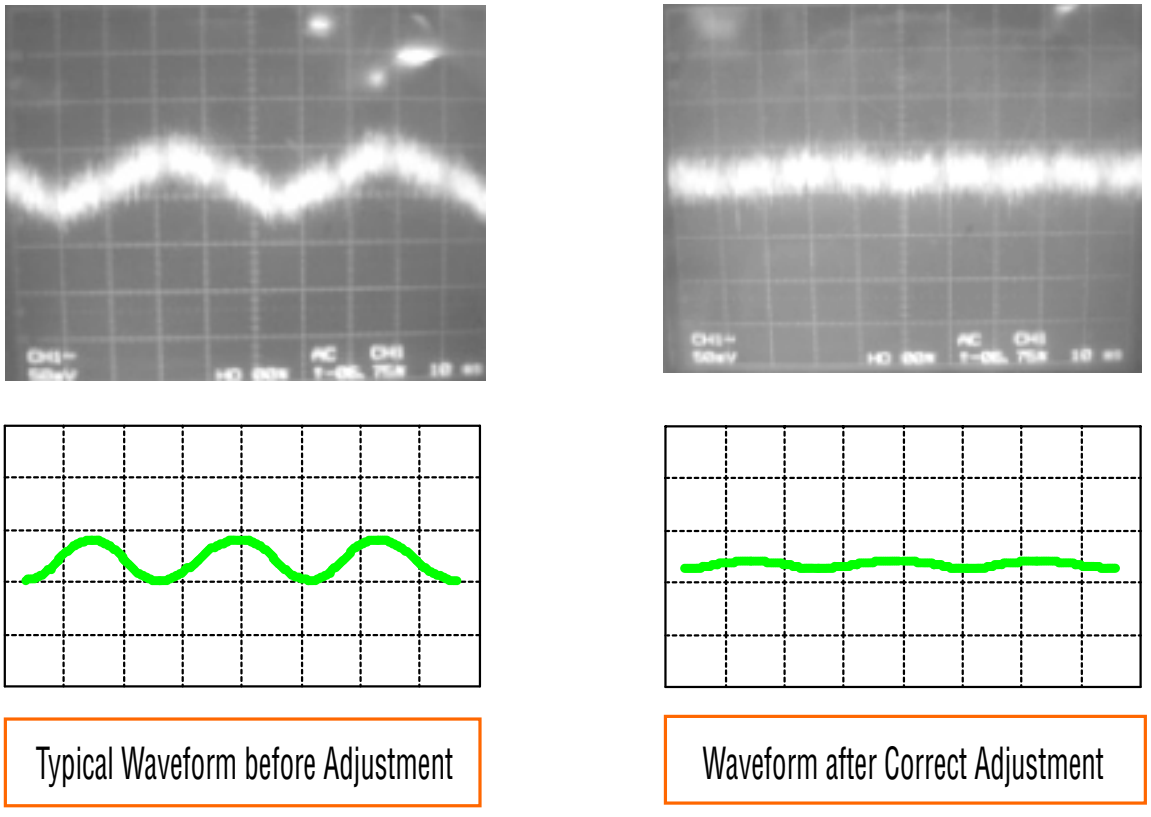


Fig. 6-7 Envelope Waveform

6-3 VCR MECHANISM ADJUSTMENT

6-3-1 Tape Transport System and Adjustment Locations

The tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the following :

1) Noise observed on the screen.
2) Tape damage.
3) Parts replacement in the tape transport system.

Lower flange height of tape guide is used as the reference for the transport adjustment.
To maintain the height of the tape guide and prevent damage, do not apply excessive force onto the main base.

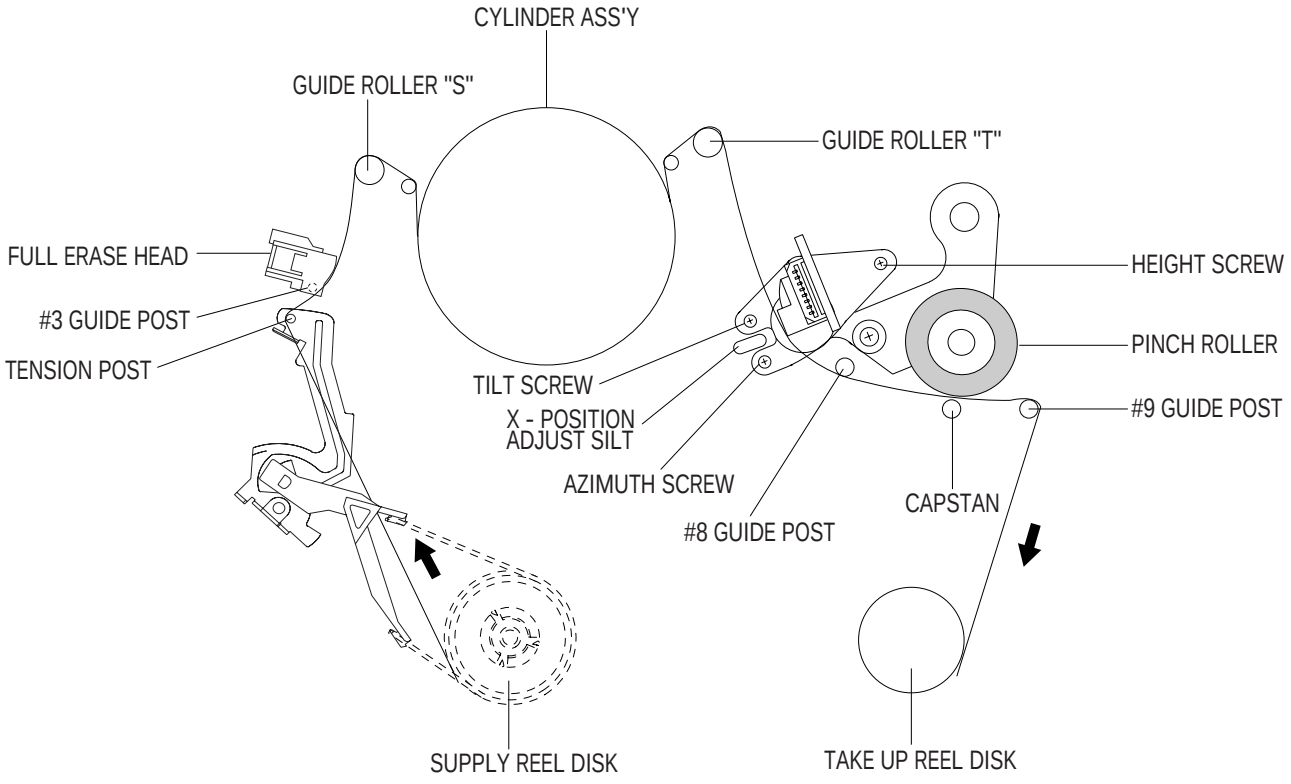


Fig. 6-8 Location of Tape Transport Adjustment

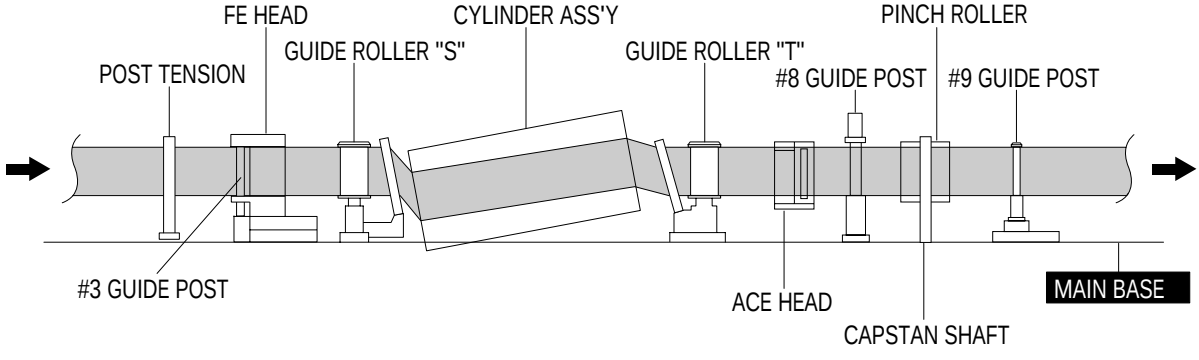


Fig. 6-9 Tape Travel Diagram

6-3-2 Tape Transport System Adjustment

When parts are replaced, perform the required adjustments by referring to procedures for the tape transport system. If there are any changes to the tape path, first run a T-120 tape and make sure excessive tape wrinkle does not occur at the tape guides.

◆ If tape wrinkle is observed at the guide roller S, T, turn the guide roller S, T until wrinkle disappears.
◆ If the tape wrinkle is still observed at the tape guide, perform the tilt adjustment of the ACE head.

(1) ACE Head Assembly Adjustment

a. ACE HEAD HEIGHT ADJUSTMENT

1) Run the alignment tape (Color bar) in the playback mode.
2) Observe surface of the audio head using a dental mirror.
3) Turn screw (C) clockwise or counterclockwise until the gap of lower tape edge and the lower edge of the control head is about 0.25mm. (Refer to Fig. 6-10 and 6-11)

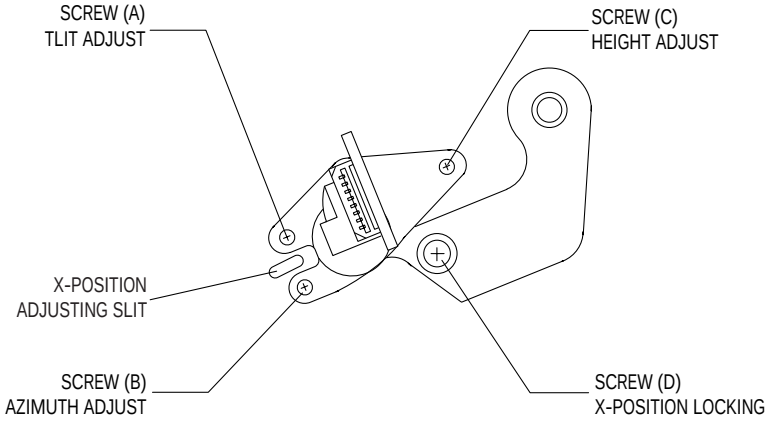


Fig. 6-10 Location of ACE Head Adjustment Screw

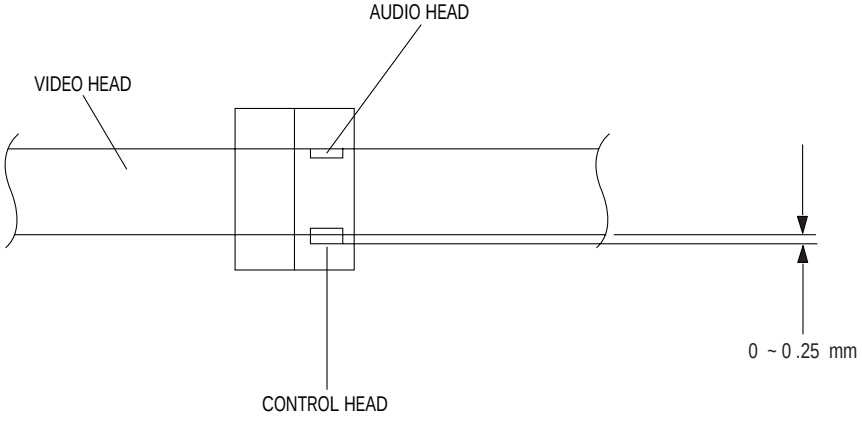


Fig. 6-11 ACE Head Height Adjustment

b. ACE HEAD TILT ADJUSTMENT

1) Playback a blank tape and observe the position of the tape at the lower flange of tape guide.
2) Confirm that there is no curl or wrinkle at the lower flange of tape guide as shown in Fig. 6-12 (B).
3) If a curl or wrinkle of the tape occurs, slightly turn the screw (A) tilt adjust on the ACE head ass'y.
4) Reconfirm the ACE head height.

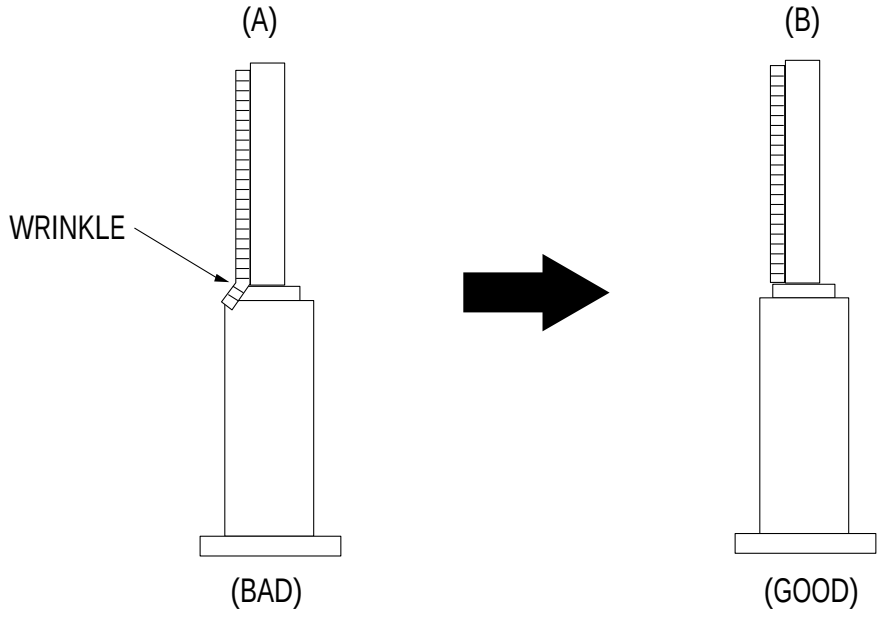


Fig. 6-12 Tape Guide Check

c. AUDIO AZIMUTH ADJUSTMENT

1) Load alignment tape (Mono scope) and playback the 7KHz signal.
2) Connect channel-1 scope probe to audio output.
3) Adjust screw (B) to achieve maximum audio level. (See Fig. 6-10)

d. ACE HEAD POSITION (X-POINT) ADJUSTMENT

1) Playback the alignment tape (Color bar)
2) Intermittently short-circuit the two Test Points on Main PCB . (See Fig. 6-2)
3) Press the “0, 5” remote control buttons, then adjustment is operates automatically. (See Fig. 6-1)
4) Connect the CH-1 probe to “Envelope” the CH-2 probe to “H’D switching pulse” and then trigger to CH-1.
5) Insert the (-) driver into the X-Point adjustment hole and adjust it so that envelope waveform is maximum.

Test point: TP2 (Audio Output)
TP3 (Envelope)
TP4 (H’D S/W -Trigger)
TP5 (Control Pulse)

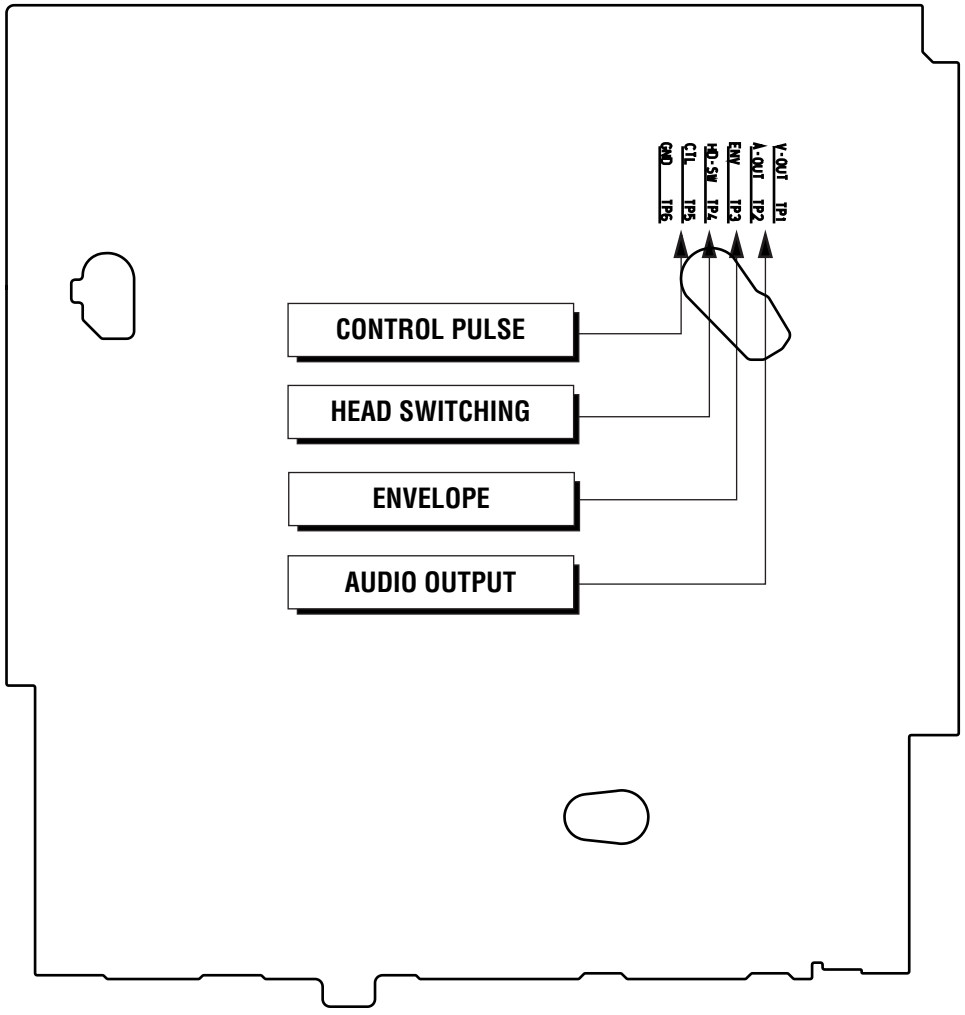


Fig. 6-13 Location of Test point (VCR Main PCB-Top View)

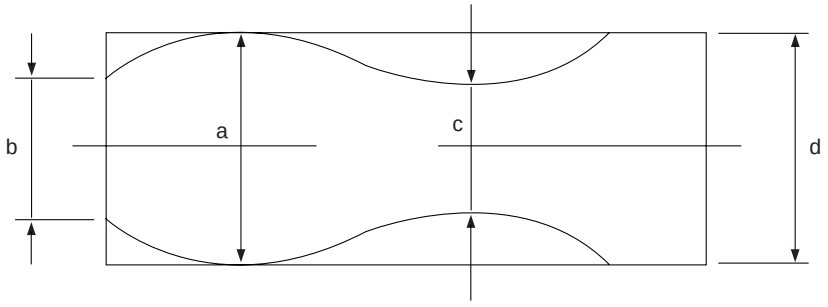
(2) Linearity adjustment (Guide roller S, T adjustment)

1) Playback the Mono Scope alignment tape (SP mode).
2) Observe the video envelope signal on an oscilloscope (triggered by the video switching pulse).
3) Make sure the video envelope waveform (at its minimum) meets the specification shown in Fig. 6-14.
   If it does not, adjust as follows :

Note:

a=Maximum output of the video RF envelope.
b=Minimum output of the video RF envelope at the entrance side.
c=Minimum output of the video RF envelope at the center point.
d=Maximum output of the video RF envelope at the exit side.

4) If the section A in Fig. 6-15 does not meet the specification, adjust the guide roller S up or down.
5) If the section B in Fig. 6-15 does not meet the specification, adjust the guide roller T up or down.



a b c d

c,b,d/a ≧ 63%

Fig. 6-14 Envelope Waveform Adjustment

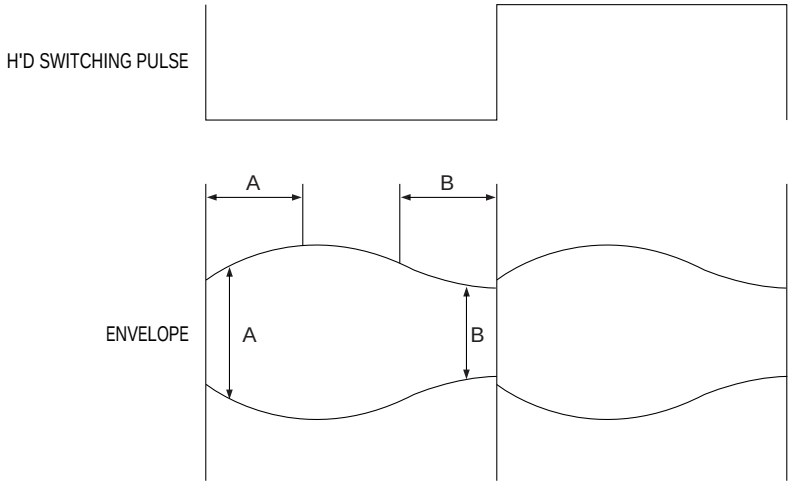


Fig. 6-15 Adjustment Points

6) Play back the Mono Scope alignment tape (SP mode).
7) Connect an oscilloscope CH-1 to the “Envelope” and CH-2 to the “H’D SW Pulse” for triggering.
8) Turn the guide roller heads with a flat head ( ) driver to obtain a flat video RF envelope as shown in Fig. 6-16.

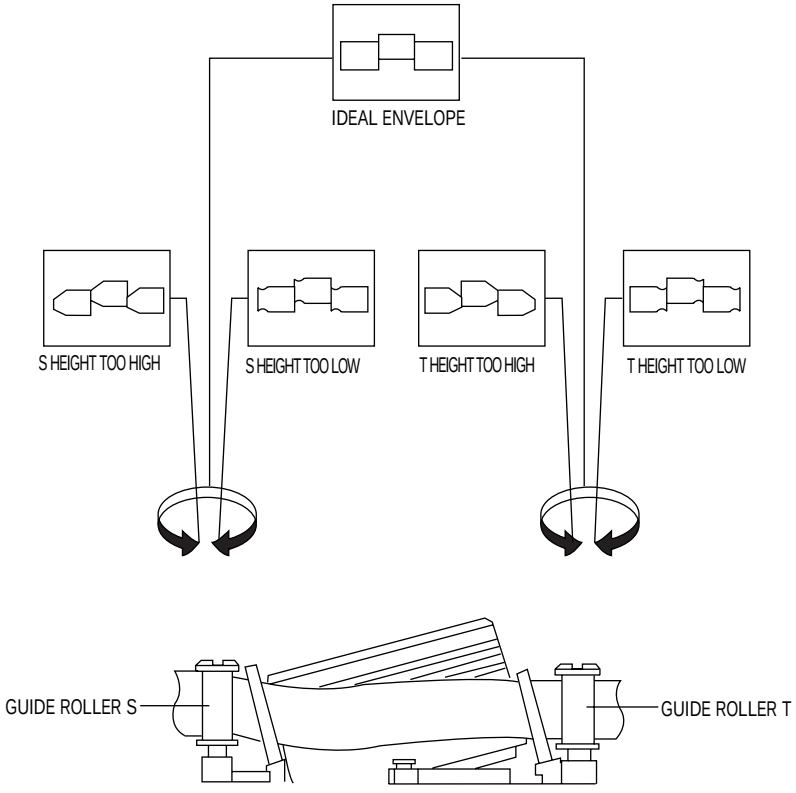


Fig. 6-16 Guide Roller S, T Height Adjustment

(3) Check Transitional Operation from RPS to Play

Check transition from RPS mode to play mode : Using a pre-recorded SP tape, make sure the entry side of envelope comes to an appropriate steady state within 3 seconds (as shown in Fig. 6-17).
If the envelope waveform does not reach specified peak-to peak amplitude within 3 seconds, adjust as follows :

1) Make sure there is no gap between the supply roller lower flange and the tape.
   If there is a gap, adjust the supply guide roller again.
2) Change operation mode from the RPS to the play mode (again) and make sure the entry side of envelope rises within 3 second.

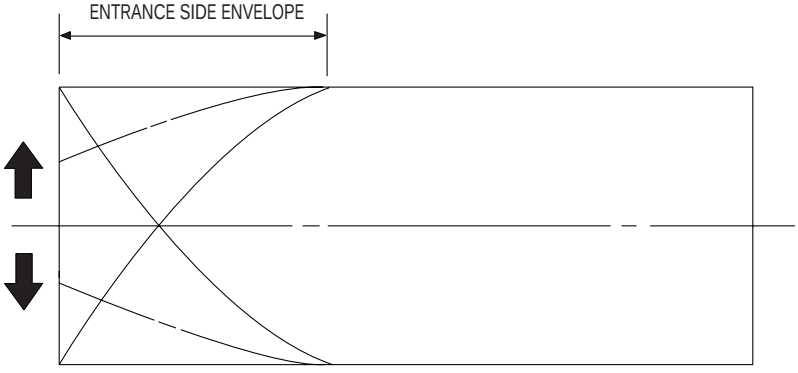


Fig. 6-17 Video Envelope Rising when Operation mode Changes from RPS to Play Mode

(4) Envelope Check

1) Make recordings on T-120 (E-120) and T-160 (E-180) tape.
   Make sure the playback output envelope meets the specification as shown in Fig. 6-18.
2) Play back a self recorded tape (recording made on the unit using with T-120 (E-120).
   The video envelope should meet the specification as shown in Fig. 6-18.
   In SP mode, (A) should equal (B).
   If the head gap is wide, upper cylinder should be checked.

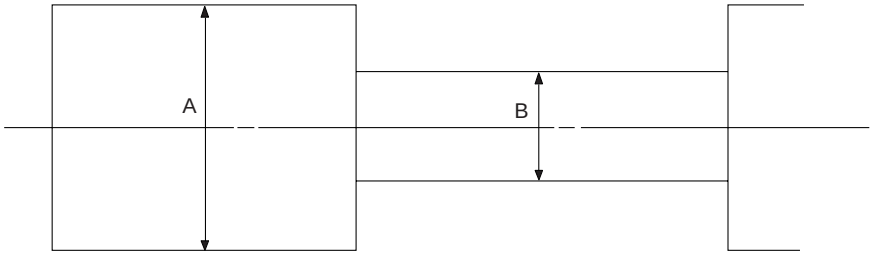


Fig. 6-18 Envelope Input and Output Level

(5) Tape Wrinkle Check

1) Run the T-160 (E-180) tape in the playback, FPS, RPS and Pause modes and observe tape wrinkle at each guide.
2) If excessive tape wrinkle is observed, perform the following adjustments in Playback mode :

- ◆ Tape wrinkle at the guide roller S, T section : Linearity adjustment.
- ◆ Tape wrinkle at tape guide flange : ACE head assembly coarse adjustment.

6-3-3 Reel Torque

1) The rotation of the capstan motor causes the holder clutch ass'y to rotate through the belt pulley.
2) The spring wrap PLAY/REV of holder clutch ass'y drives the disk reel S, T through gear idler by rotation of gear center ass'y.
3) Brake is operated by slider cam at FF/REW mode.
4) Transportation of accurate driving force is done by gears. (Gear Center Ass'y)

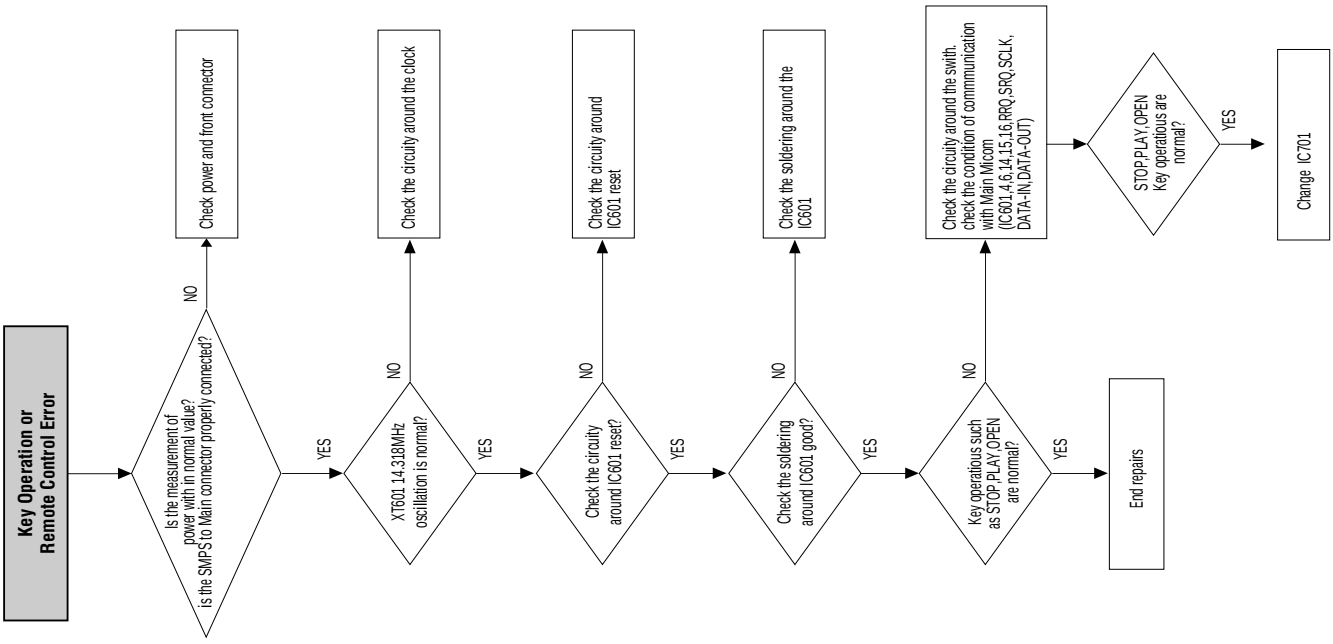
Note: If the spec. does not meet the followings specifications, replace the holder clutch ass'y and then recheck.

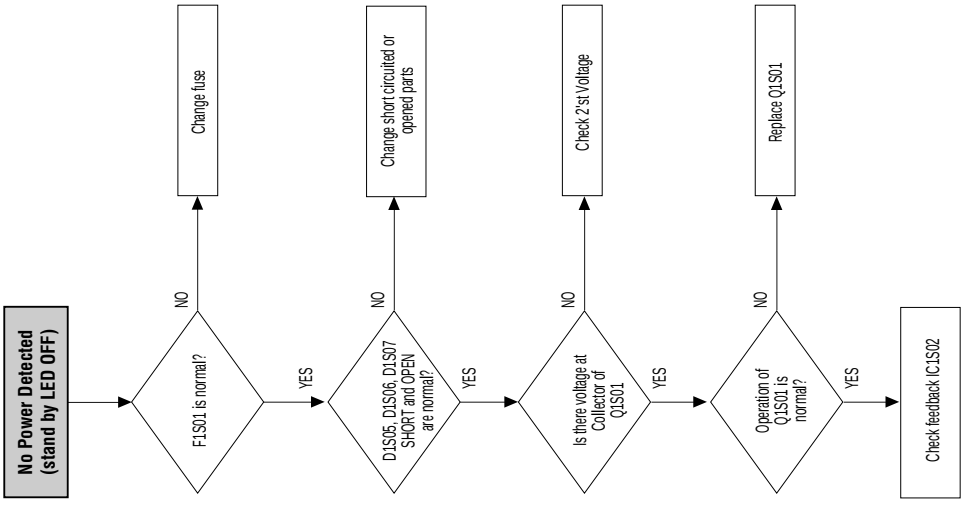
< Table 6-4 >

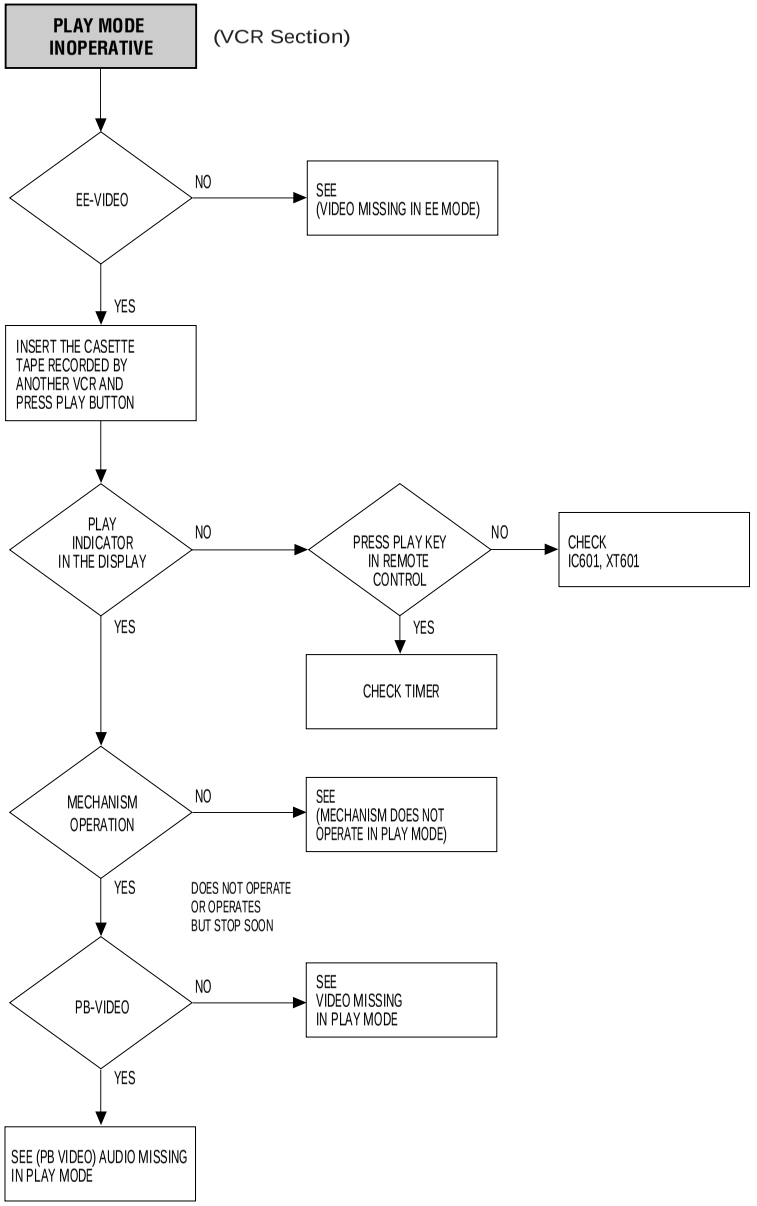
MODE	TORQUE g/cm	GAUGE
PB	42 ± 11	Cassette Torquemeter
RPS	145 ± 30	Cassette Torquemeter

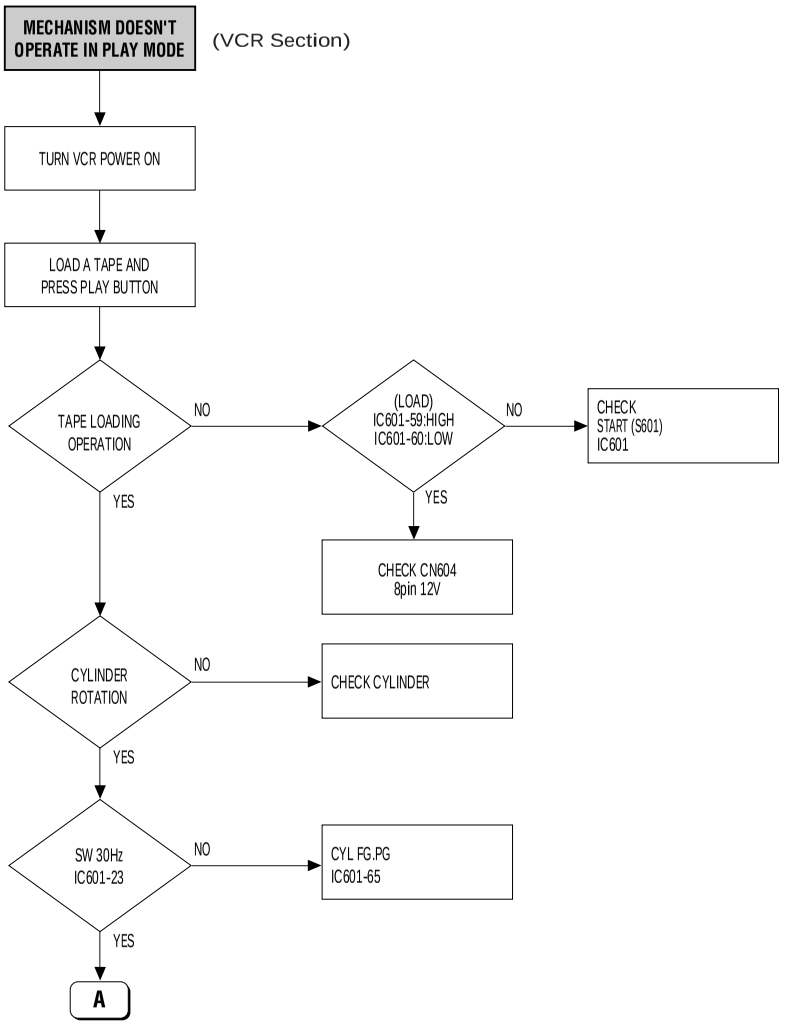
MEMO

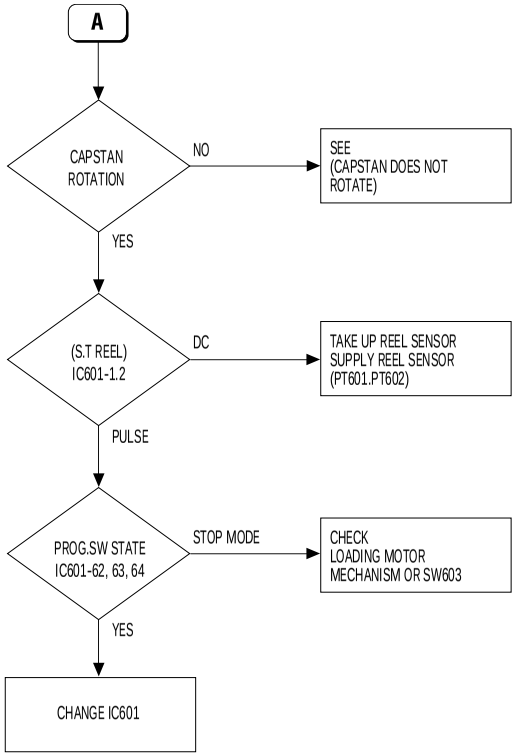
7. TROUBLESHOOTING

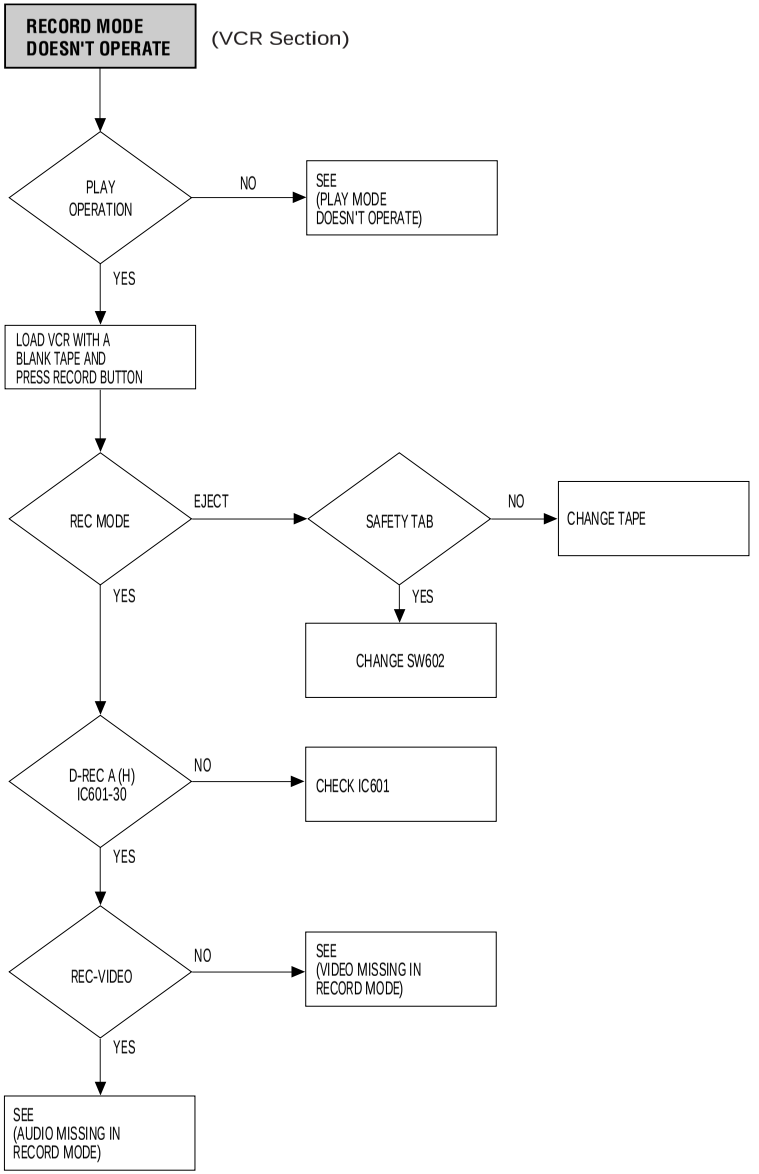

Key Operation or Remote Control Error
Is the measurement of power with in normal value? is the SMPS to Main connector properly connected?
NO
Check power and front connector
YES
XT601 14.318MHz oscillation is normal?
NO
Check the circuity around the clock
YES
Check the circuity around IC601 reset?
NO
Check the circuity around IC601 reset
YES
Check the soldering around IC601 good?
NO
Check the soldering around the IC601
YES
Key operatious such as STOP,PLAY,OPEN are normal?
NO
Check the circuity around the swith, check the condition of commmunication with Main Micom (IC601,4,6,14,15,16,RRQ,SRQ,SCLK, DATA-IN,DATA-OUT)
YES
End repairs
STOP,PLAY,OPEN Key operatious are normal?
YES
Change IC701

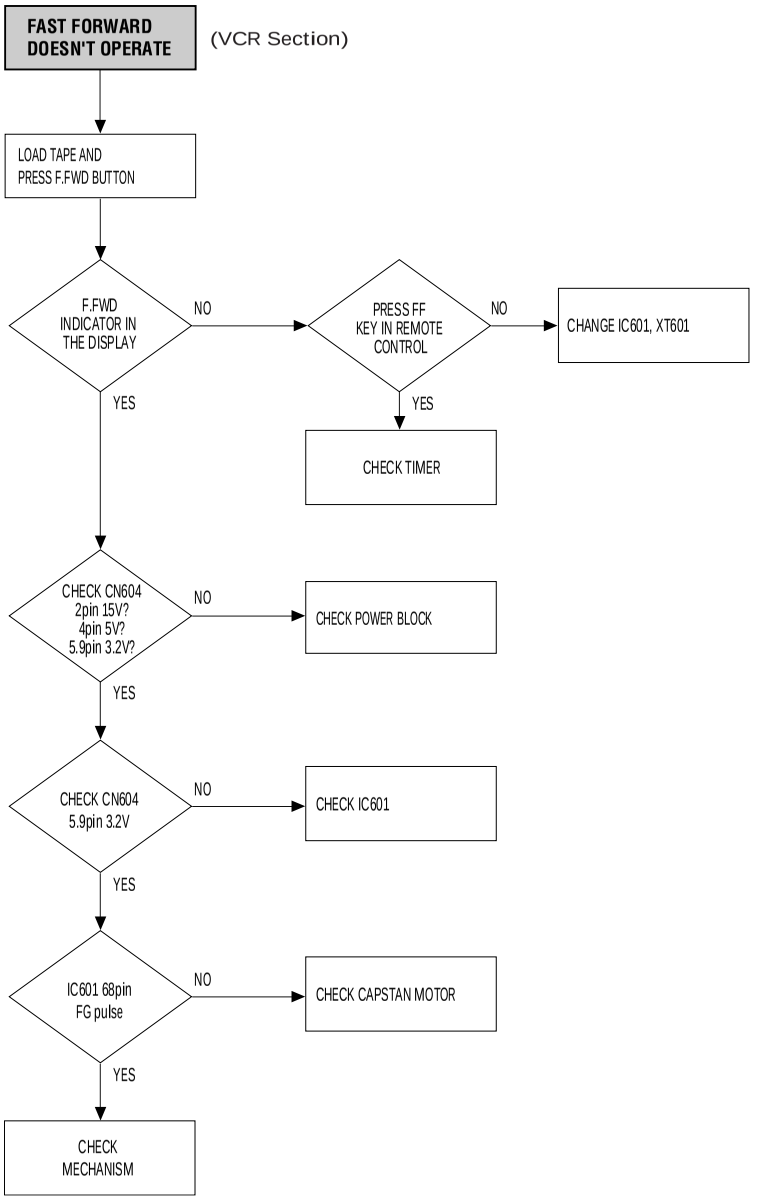


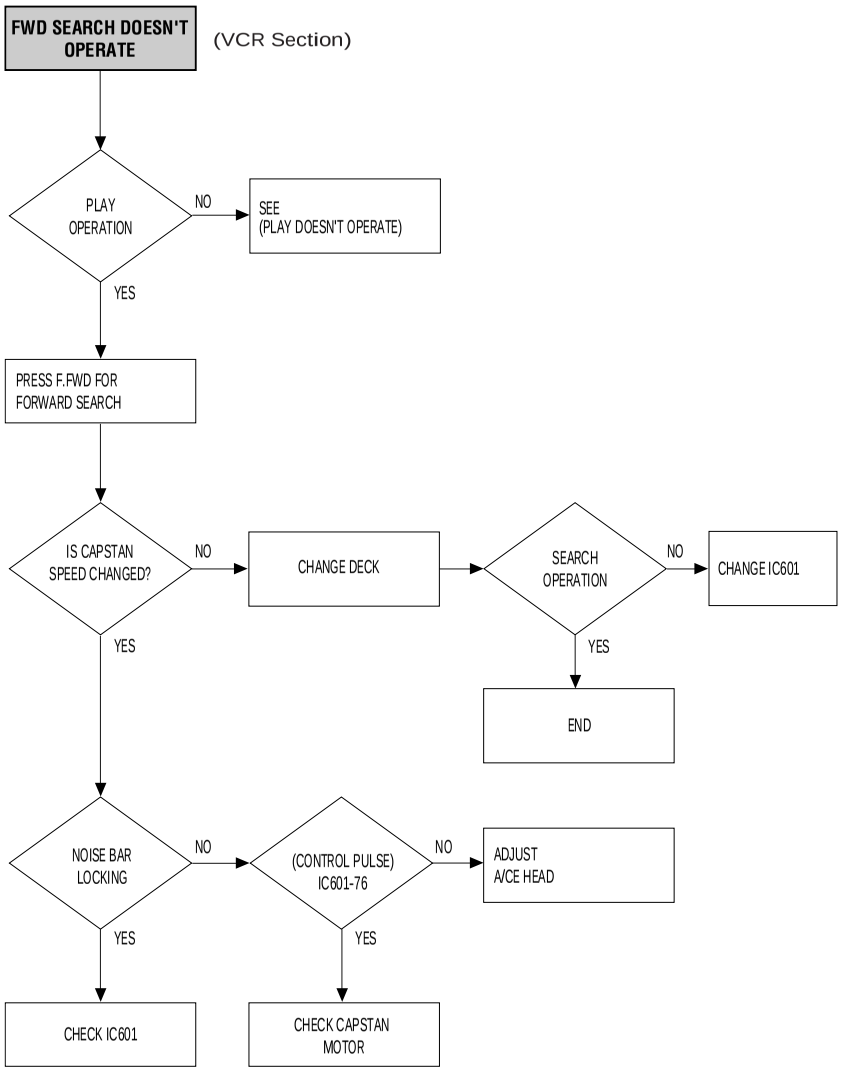

PLAY MODE INOPERATIVE
(VCR Section)
EE-VIDEO
NO
SEE (VIDEO MISSING IN EE MODE)
YES
INSERT THE CASETTE TAPE RECORDED BY ANOTHER VCR AND PRESS PLAY BUTTON
PLAY INDICATOR IN THE DISPLAY
NO
PRESS PLAY KEY IN REMOTE CONTROL
NO
CHECK IC601, XT601
YES
YES
CHECK TIMER
MECHANISM OPERATION
NO
SEE (MECHANISM DOES NOT OPERATE IN PLAY MODE)
YES
DOES NOT OPERATE OR OPERATES BUT STOP SOON
PB-VIDEO
NO
SEE VIDEO MISSING IN PLAY MODE
YES
SEE (PB VIDEO) AUDIO MISSING IN PLAY MODE

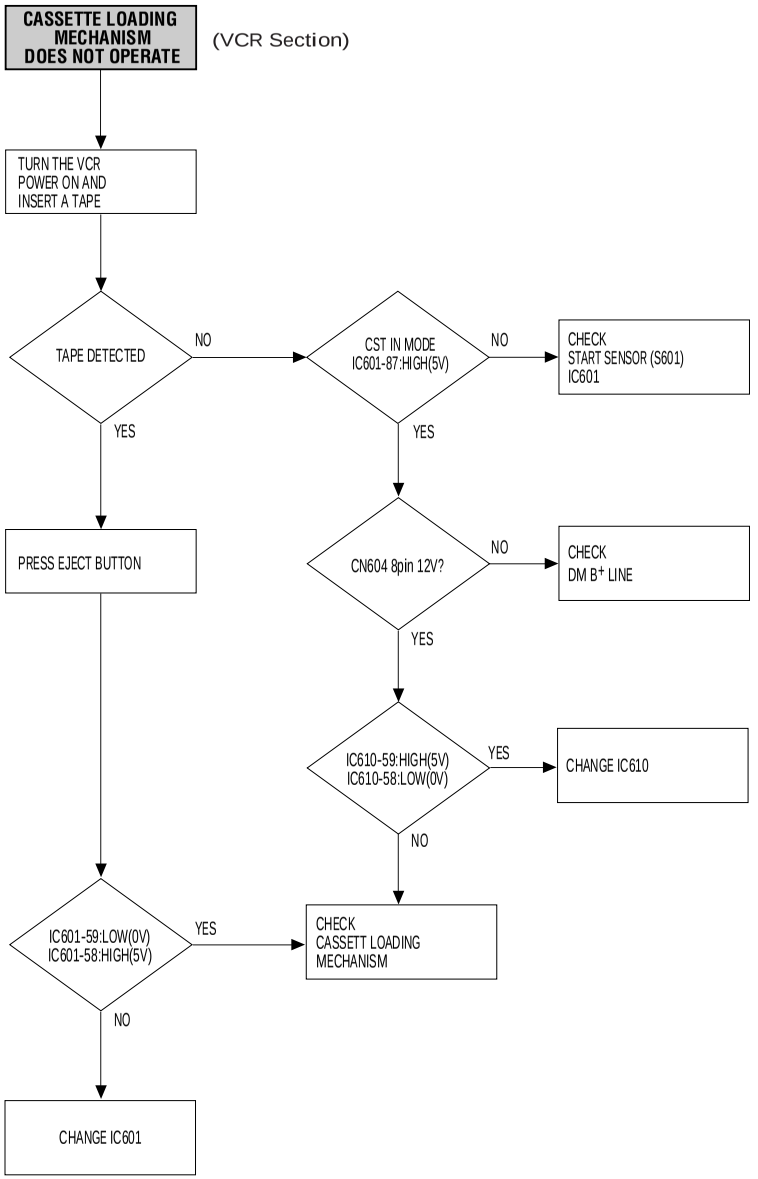

MECHANISM DOESN'T OPERATE IN PLAY MODE
(VCR Section)
TURN VCR POWER ON
LOAD A TAPE AND PRESS PLAY BUTTON
TAPE LOADING OPERATION
NO
(LOAD) IC601-59:HIGH IC601-60:LOW
NO
CHECK START (S601) IC601
YES
YES
CHECK CN604 8pin 12V
CYLINDER ROTATION
NO
CHECK CYLINDER
YES
SW 30Hz IC601-23
NO
CYL FG.PG IC601-65
YES
A

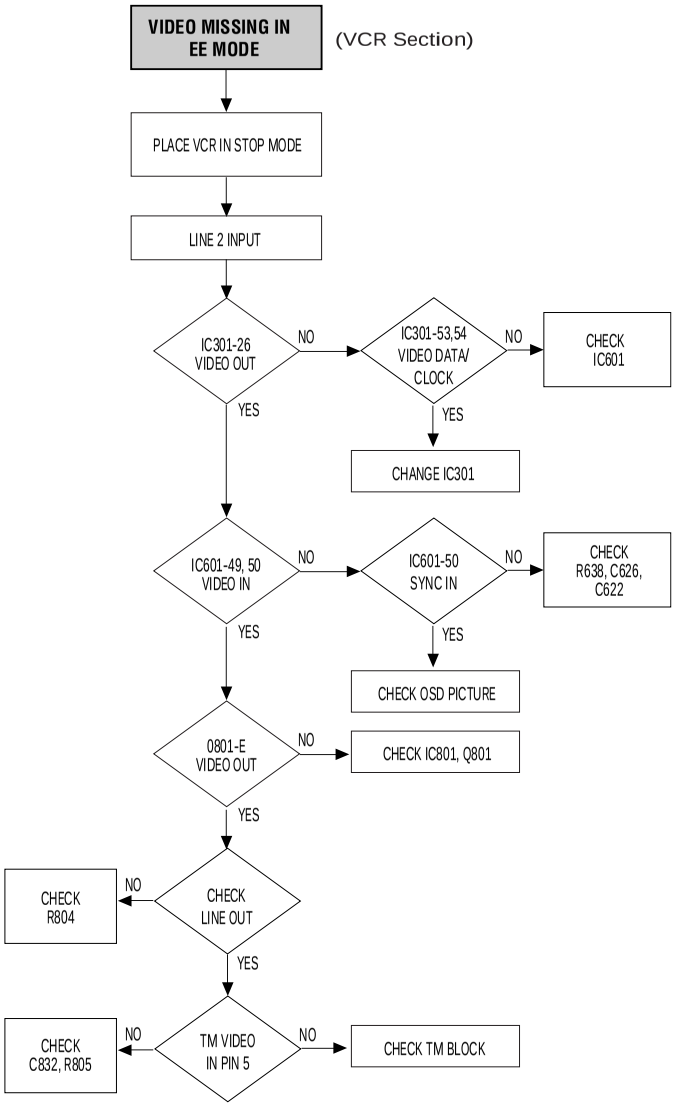

A
CAPSTAN ROTATION
NO
SEE (CAPSTAN DOES NOT ROTATE)
YES
(S.T REEL) IC601-1.2
DC
TAKE UP REEL SENSOR SUPPLY REEL SENSOR (PT601.PT602)
PULSE
PROG.SW STATE IC601-62, 63, 64
STOP MODE
CHECK LOADING MOTOR MECHANISM OR SW603
YES
CHANGE IC601

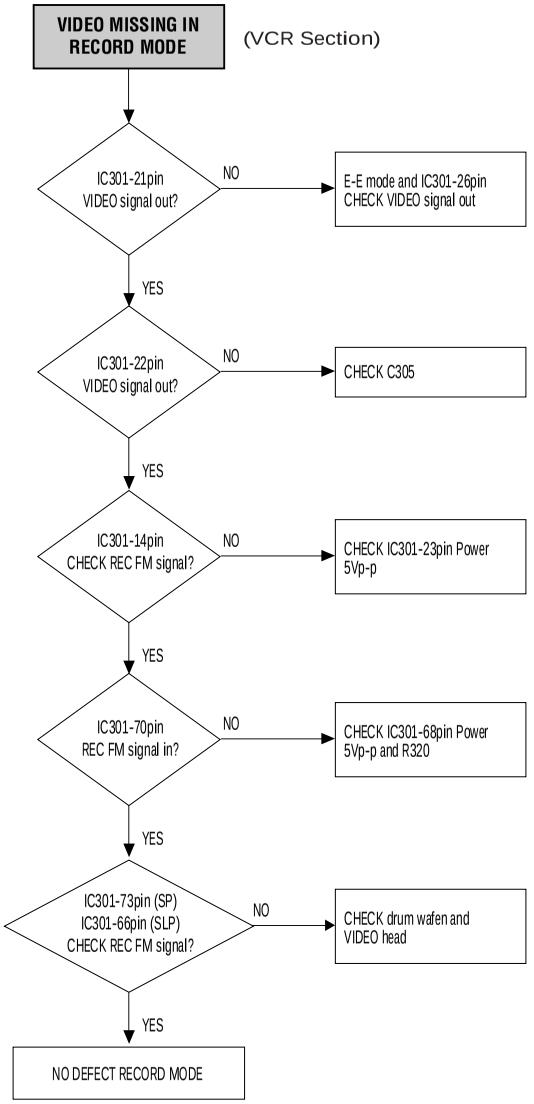

RECORD MODE DOESN'T OPERATE
(VCR Section)
PLAY OPERATION
NO
SEE (PLAY MODE DOESN'T OPERATE)
YES
LOAD VCR WITH A BLANK TAPE AND PRESS RECORD BUTTON
REC MODE
EJECT
SAFETY TAB
NO
CHANGE TAPE
YES
YES
CHANGE SW602
D-REC A (H) IC601-30
NO
CHECK IC601
YES
REC-VIDEO
NO
SEE (VIDEO MISSING IN RECORD MODE)
YES
SEE (AUDIO MISSING IN RECORD MODE)

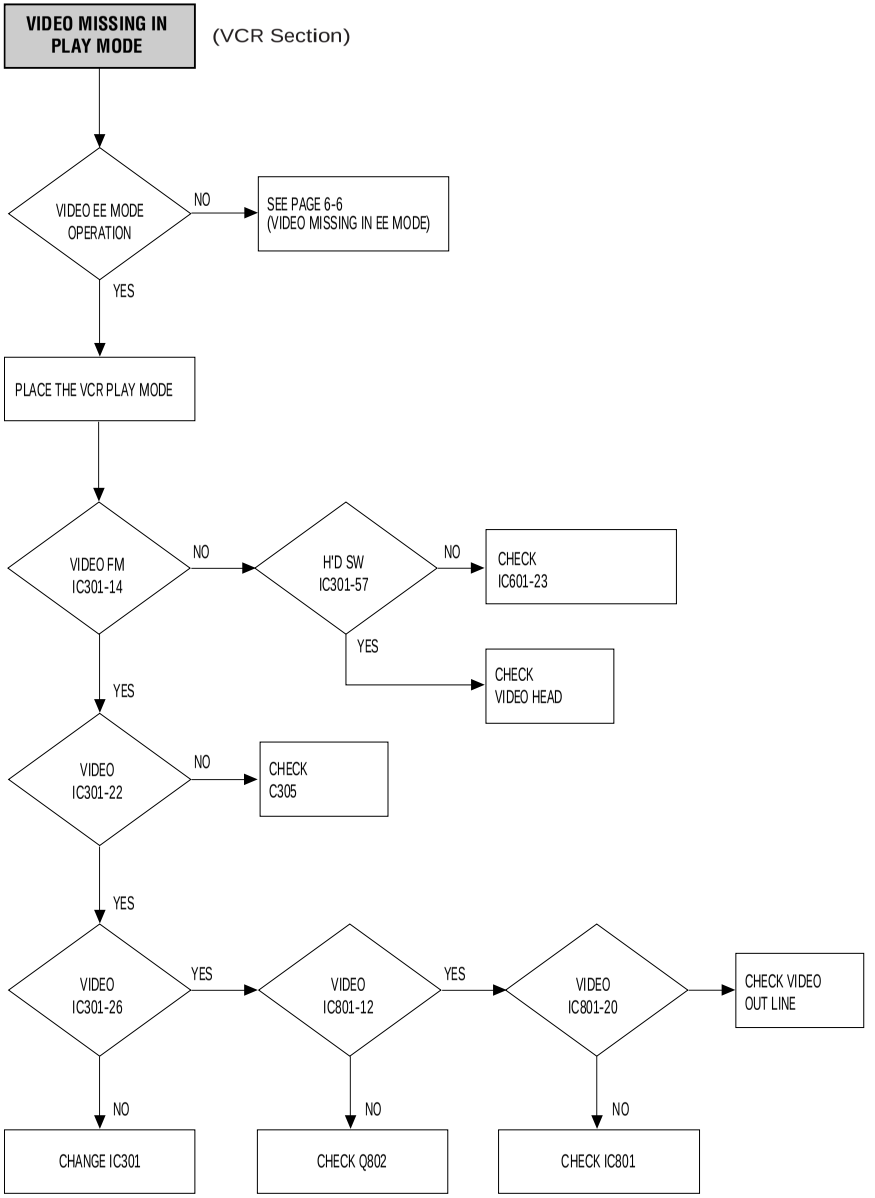

FAST FORWARD DOESN'T OPERATE
(VCR Section)
LOAD TAPE AND PRESS F.FWD BUTTON
F.FWD INDICATOR IN THE DISPLAY
NO
PRESS FF KEY IN REMOTE CONTROL
NO
CHANGE IC601, XT601
YES
YES
CHECK TIMER
CHECK CN604 2pin 15V? 4pin 5V? 5.9pin 3.2V?
NO
CHECK POWER BLOCK
YES
CHECK CN604 5.9pin 3.2V
NO
CHECK IC601
YES
IC601 68pin FG pulse
NO
CHECK CAPSTAN MOTOR
YES
CHECK MECHANISM

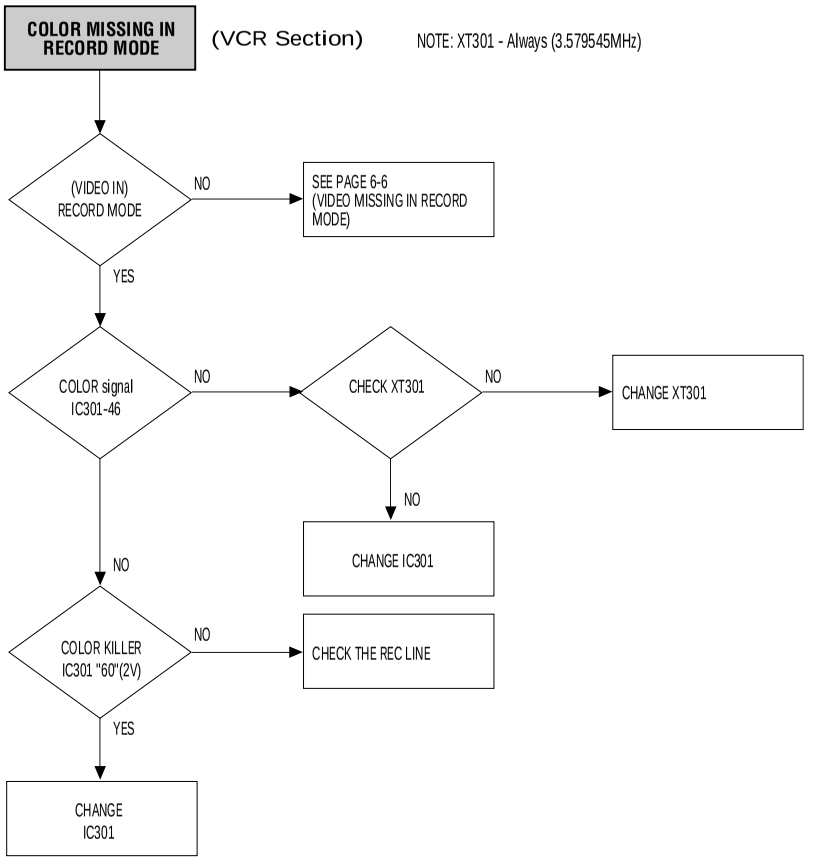

FWD SEARCH DOESN'T OPERATE
(VCR Section)
PLAY OPERATION
NO
SEE (PLAY DOESN'T OPERATE)
YES
PRESS F.FWD FOR FORWARD SEARCH
IS CAPSTAN SPEED CHANGED?
NO
CHANGE DECK
SEARCH OPERATION
NO
CHANGE IC601
YES
YES
END
NOISE BAR LOCKING
NO
(CONTROL PULSE) IC601-76
NO
ADJUST A/CE HEAD
YES
YES
CHECK IC601
CHECK CAPSTAN MOTOR

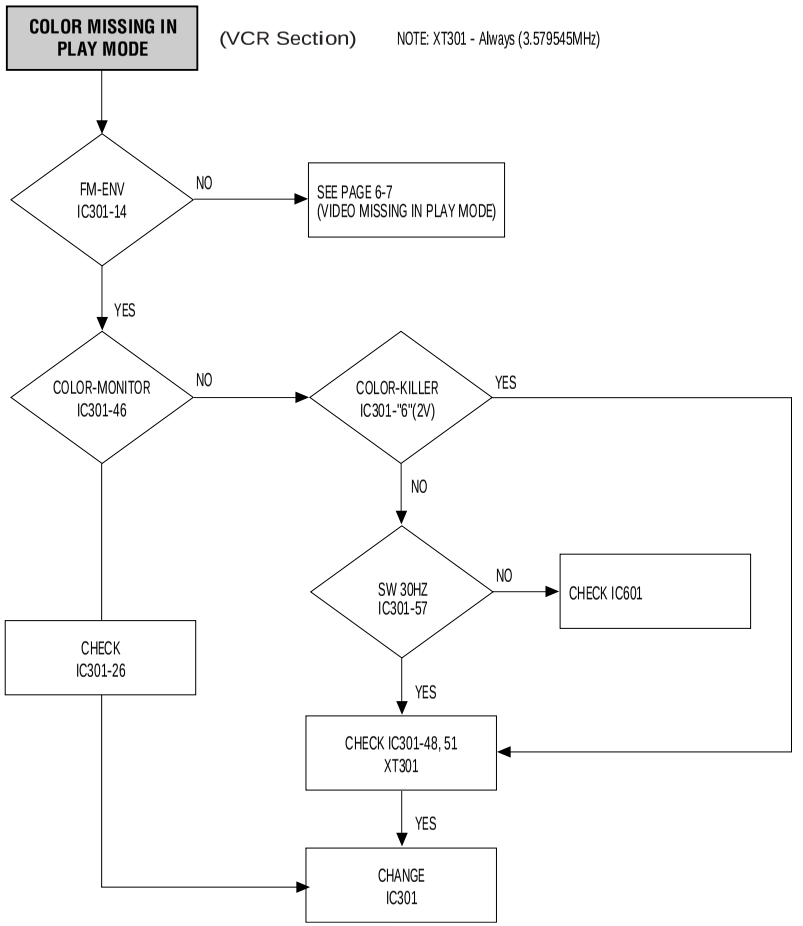

CASSETTE LOADING MECHANISM DOES NOT OPERATE
(VCR Section)
TURN THE VCR POWER ON AND INSERT A TAPE
TAPE DETECTED
NO
YES
CST IN MODE IC601-87:HIGH(5V)
NO
CHECK START SENSOR (S601) IC601
YES
PRESS EJECT BUTTON
CN604 8pin 12V?
NO
CHECK DM B+ LINE
YES
IC610-59:HIGH(5V) IC610-58:LOW(0V)
YES
CHANGE IC610
NO
IC601-59:LOW(0V) IC601-58:HIGH(5V)
YES
CHECK CASSETT LOADING MECHANISM
NO
CHANGE IC601


VIDEO MISSING IN EE MODE
(VCR Section)
PLACE VCR IN STOP MODE
LINE 2 INPUT
IC301-26 VIDEO OUT
NO
IC301-53,54 VIDEO DATA/ CLOCK
NO
CHECK IC601
YES
YES
CHANGE IC301
IC601-49, 50 VIDEO IN
NO
IC601-50 SYNC IN
NO
CHECK R638, C626, C622
YES
YES
CHECK OSD PICTURE
0801-E VIDEO OUT
NO
CHECK IC801, Q801
YES
CHECK LINE OUT
NO
CHECK R804
YES
TM VIDEO IN PIN 5
NO
CHECK TM BLOCK
NO
CHECK C832, R805

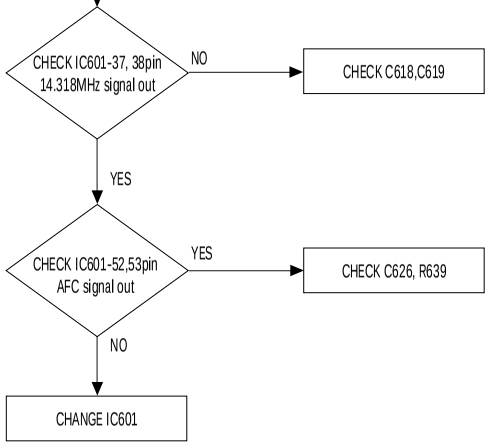

VIDEO MISSING IN RECORD MODE
(VCR Section)
IC301-21pin VIDEO signal out?
NO
E-E mode and IC301-26pin CHECK VIDEO signal out
YES
IC301-22pin VIDEO signal out?
NO
CHECK C305
YES
IC301-14pin CHECK REC FM signal?
NO
CHECK IC301-23pin Power 5Vp-p
YES
IC301-70pin REC FM signal in?
NO
CHECK IC301-68pin Power 5Vp-p and R320
YES
IC301-73pin (SP) IC301-66pin (SLP) CHECK REC FM signal?
NO
CHECK drum wafen and VIDEO head
YES
NO DEFECT RECORD MODE


VIDEO MISSING IN PLAY MODE
(VCR Section)
VIDEO EE MODE OPERATION
NO
SEE PAGE 6-6 (VIDEO MISSING IN EE MODE)
YES
PLACE THE VCR PLAY MODE
VIDEO FM IC301-14
NO
H'D SW IC301-57
NO
CHECK IC601-23
YES
CHECK VIDEO HEAD
YES
VIDEO IC301-22
NO
CHECK C305
YES
VIDEO IC301-26
YES
VIDEO IC801-12
YES
VIDEO IC801-20
CHECK VIDEO OUT LINE
NO
CHANGE IC301
NO
CHECK Q802
NO
CHECK IC801

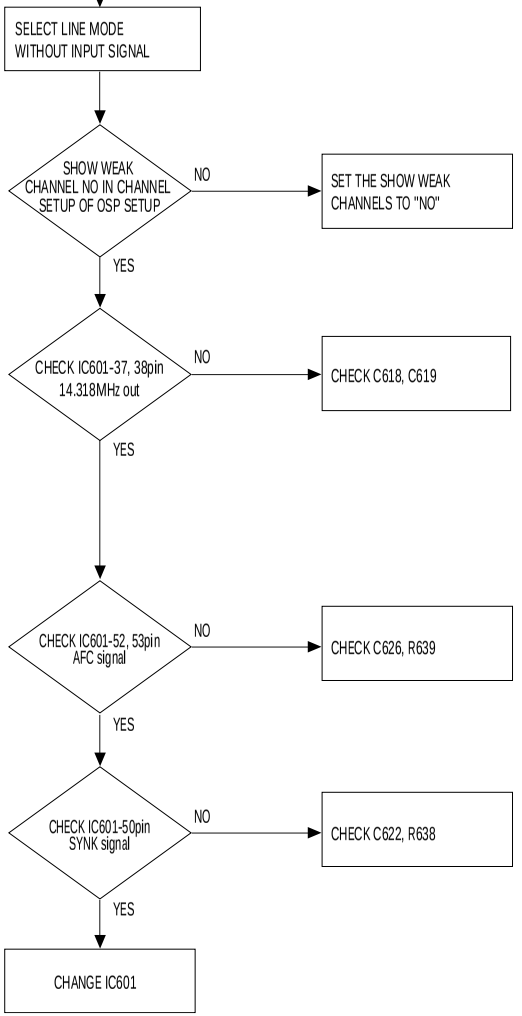

COLOR MISSING IN RECORD MODE
(VCR Section)
NOTE: XT301 - Always (3.579545MHz)
(VIDEO IN) RECORD MODE
NO
SEE PAGE 6-6 (VIDEO MISSING IN RECORD MODE)
YES
COLOR signal IC301-46
NO
CHECK XT301
NO
CHANGE XT301
NO
CHANGE IC301
NO
COLOR KILLER IC301 "60"(2V)
NO
CHECK THE REC LINE
YES
CHANGE IC301

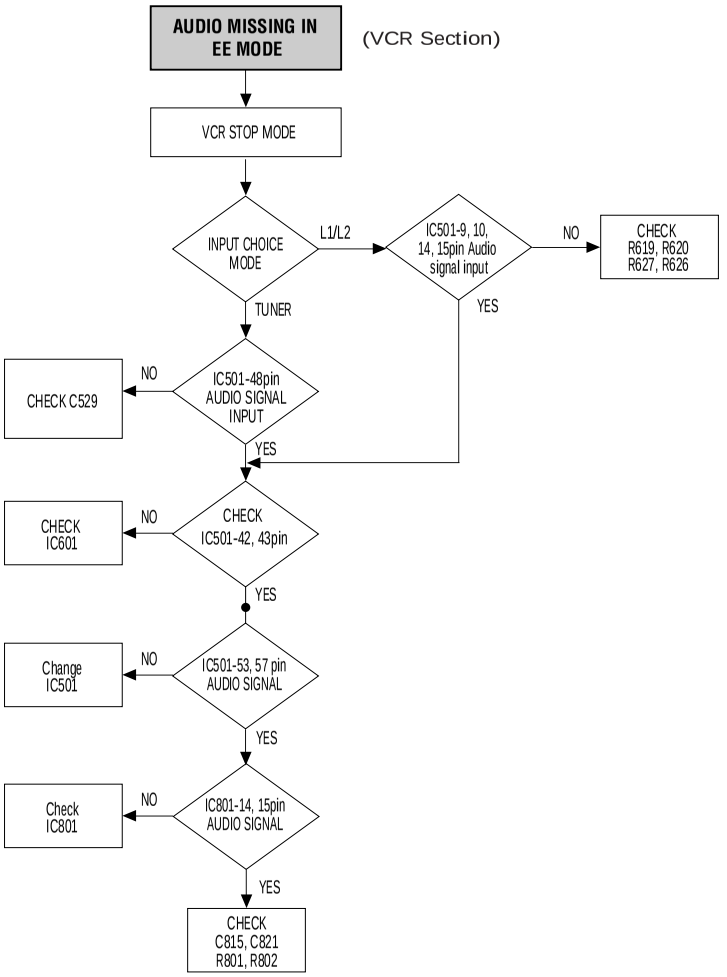

COLOR MISSING IN PLAY MODE
(VCR Section)
NOTE: XT301 - Always (3.579545MHz)
FM-ENV IC301-14
NO
SEE PAGE 6-7 (VIDEO MISSING IN PLAY MODE)
YES
COLOR-MONITOR IC301-46
NO
COLOR-KILLER IC301-"6"(2V)
YES
NO
SW 30HZ IC301-57
NO
CHECK IC601
YES
CHECK IC301
CHECK IC301-48, 51 XT301
YES
CHANGE IC301

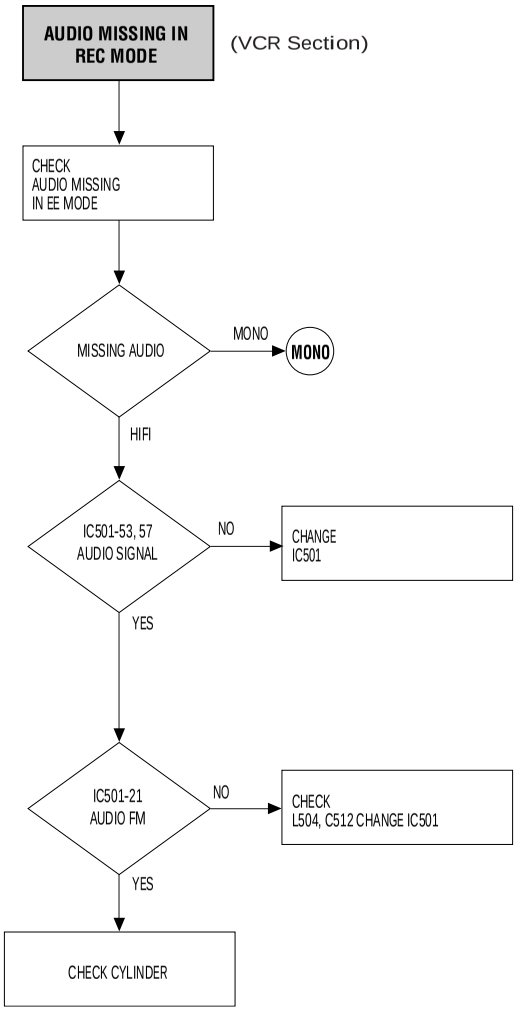
OSD PICTURE MISSING (VCR Section)

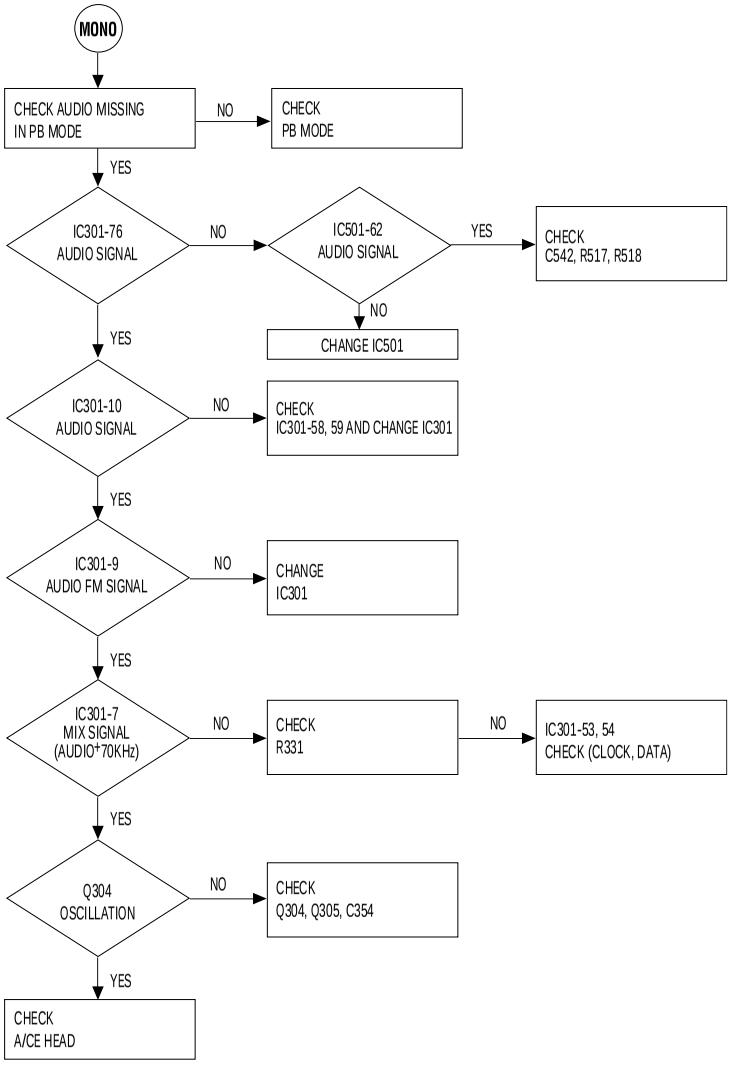


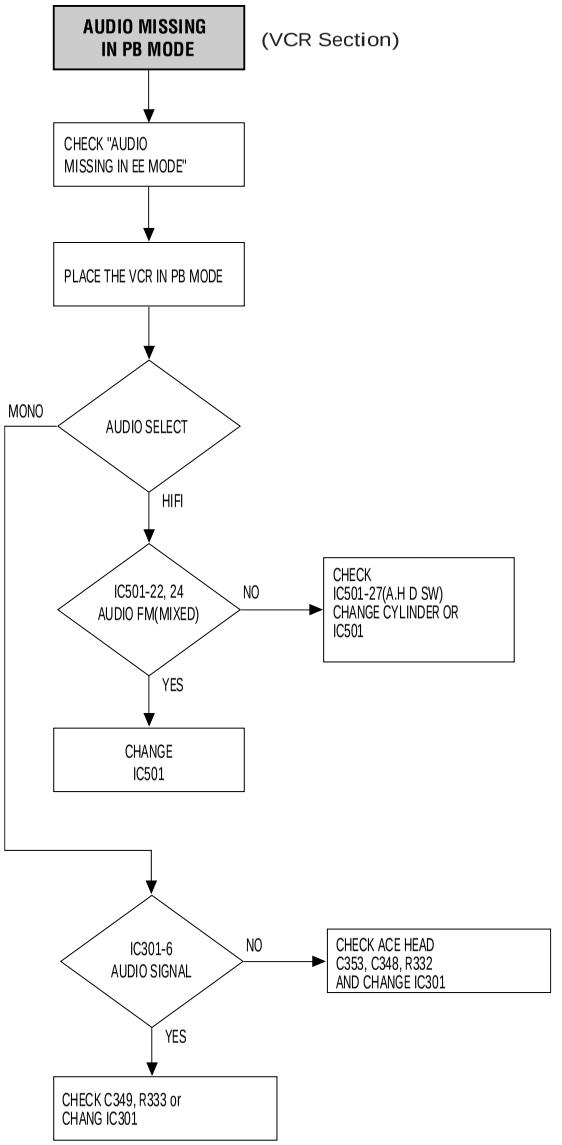
BLUE MISSING IN STOP MODE (VCR Section)

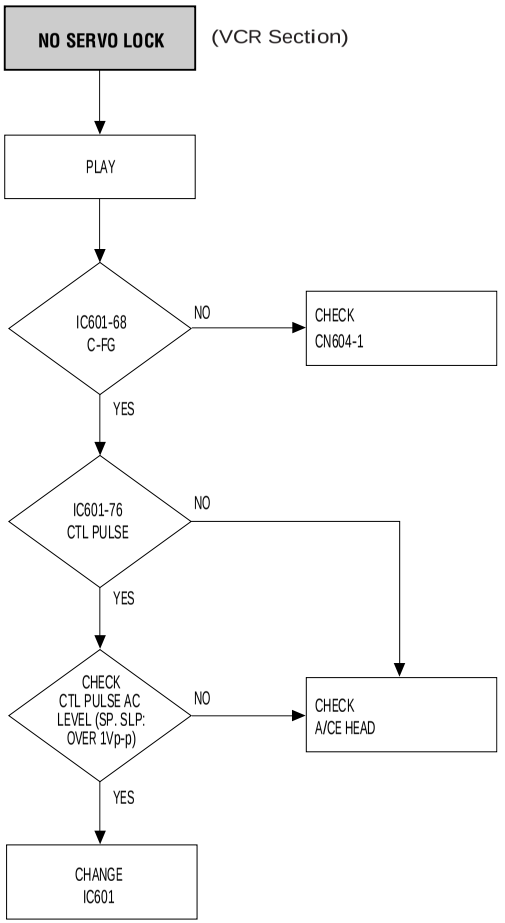


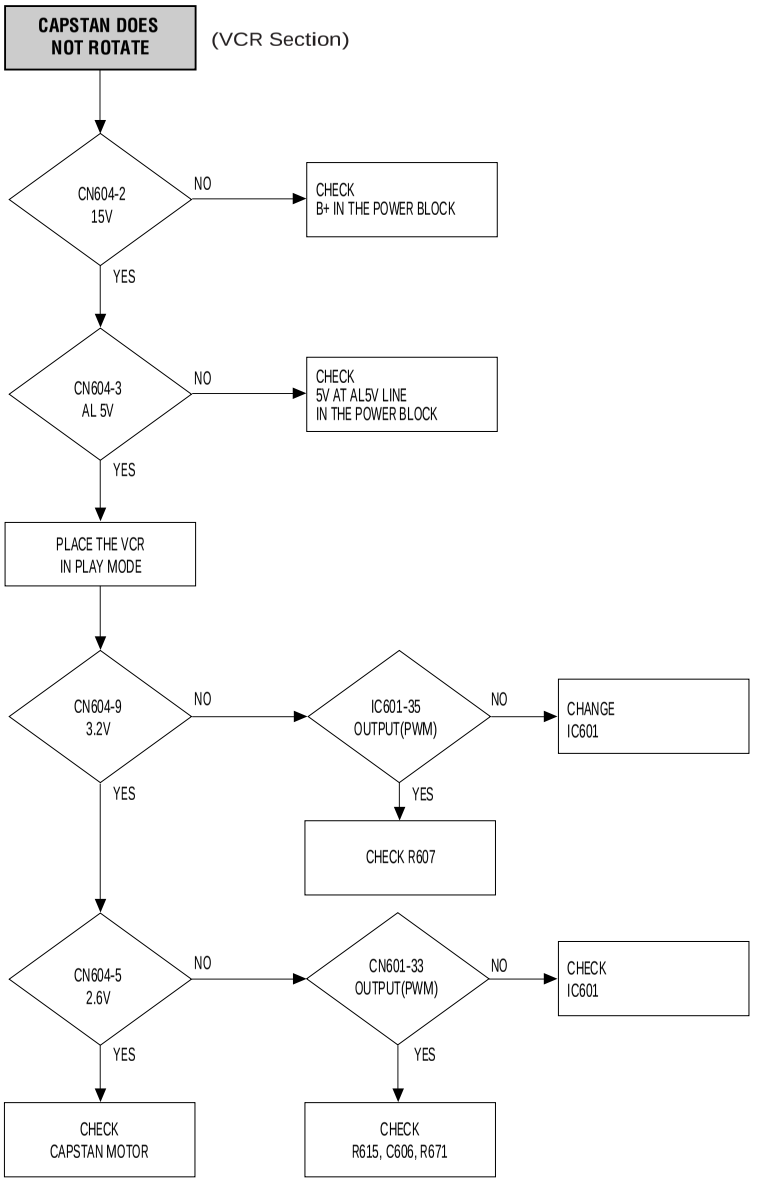

AUDIO MISSING IN EE MODE
(VCR Section)
VCR STOP MODE
INPUT CHOICE MODE
L1/L2
IC501-9, 10, 14, 15pin Audio signal input
NO
CHECK R619, R620 R627, R626
YES
TUNER
CHECK C529
NO
IC501-48pin AUDIO SIGNAL INPUT
YES
CHECK IC601
NO
CHECK IC501-42, 43pin
YES
Change IC501
NO
IC501-53, 57 pin AUDIO SIGNAL
YES
Check IC801
NO
IC801-14, 15pin AUDIO SIGNAL
YES
CHECK C815, C821 R801, R802

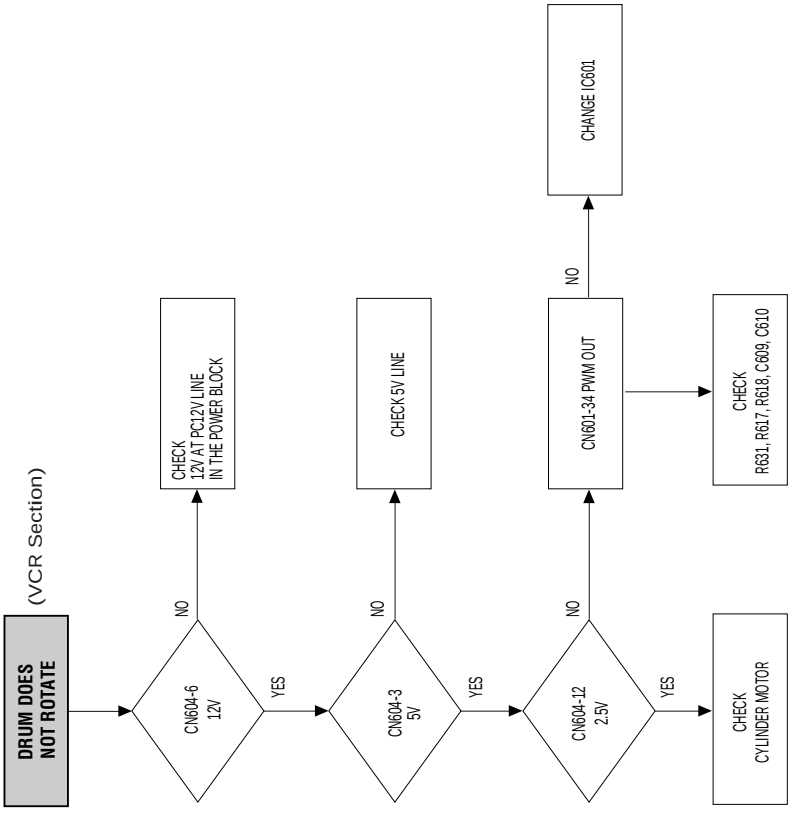

AUDIO MISSING IN REC MODE
(VCR Section)
CHECK AUDIO MISSING IN EE MODE
MISSING AUDIO
MONO
MONO
HIFI
IC501-53, 57 AUDIO SIGNAL
NO
CHANGE IC501
YES
IC501-21 AUDIO FM
NO
CHECK L504, C512 CHANGE IC501
YES
CHECK CYLINDER

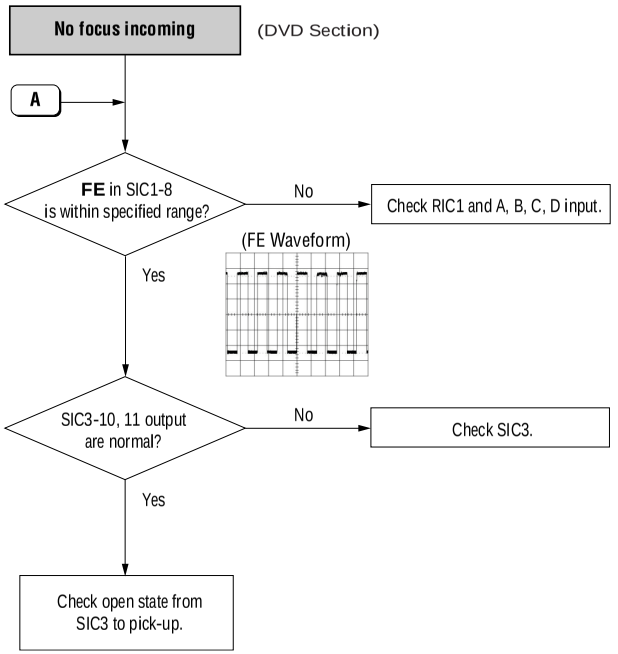

MONO
CHECK AUDIO MISSING IN PB MODE
NO
CHECK PB MODE
YES
IC301-76 AUDIO SIGNAL
NO
IC501-62 AUDIO SIGNAL
YES
CHECK C542, R517, R518
NO
CHANGE IC501
YES
IC301-10 AUDIO SIGNAL
NO
CHECK IC301-58, 59 AND CHANGE IC301
YES
IC301-9 AUDIO FM SIGNAL
NO
CHANGE IC301
YES
IC301-7 MIX SIGNAL (AUDIO+70KHz)
NO
CHECK R331
NO
IC301-53, 54 CHECK (CLOCK, DATA)
YES
Q304 OSCILLATION
NO
CHECK Q304, Q305, C354
YES
CHECK A/CE HEAD

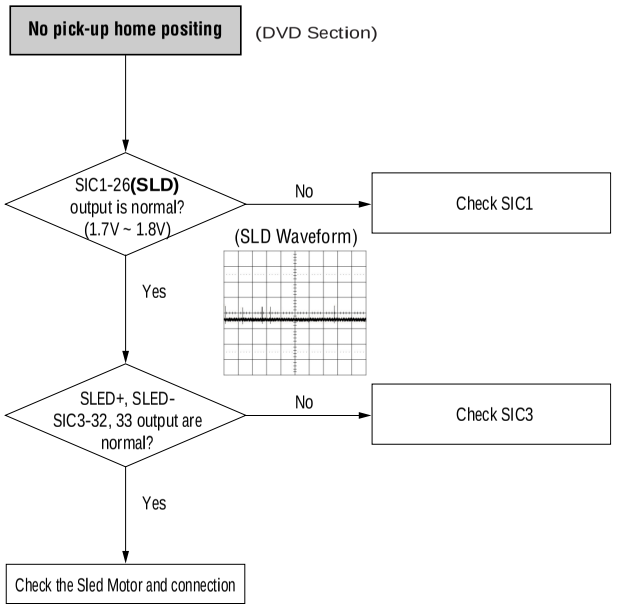

AUDIO MISSING IN PB MODE
(VCR Section)
CHECK "AUDIO MISSING IN EE MODE"
PLACE THE VCR IN PB MODE
MONO
AUDIO SELECT
HIFI
IC501-22, 24 AUDIO FM(MIXED)
NO
CHECK IC501-27(A.H D SW) CHANGE CYLINDER OR IC501
YES
CHANGE IC501
IC301-6 AUDIO SIGNAL
NO
CHECK ACE HEAD C353, C348, R332 AND CHANGE IC301
YES
CHECK C349, R333 or CHANG IC301

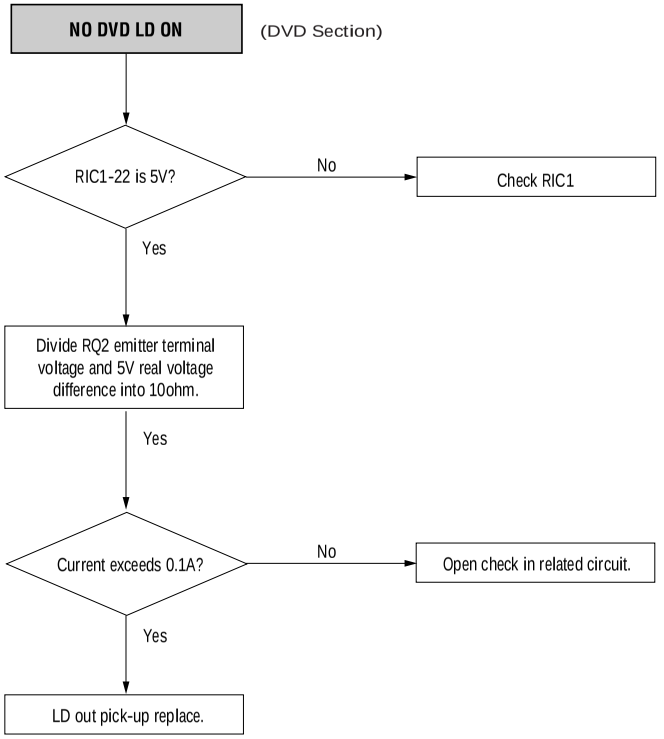

NO SERVO LOCK
(VCR Section)
PLAY
IC601-68
C-FG
NO
CHECK
CN604-1
YES
IC601-76
CTL PULSE
NO
YES
CHECK
CTL PULSE AC
LEVEL (SP. SLP:
OVER 1Vp-p)
NO
CHECK
A/CE HEAD
YES
CHANGE
IC601

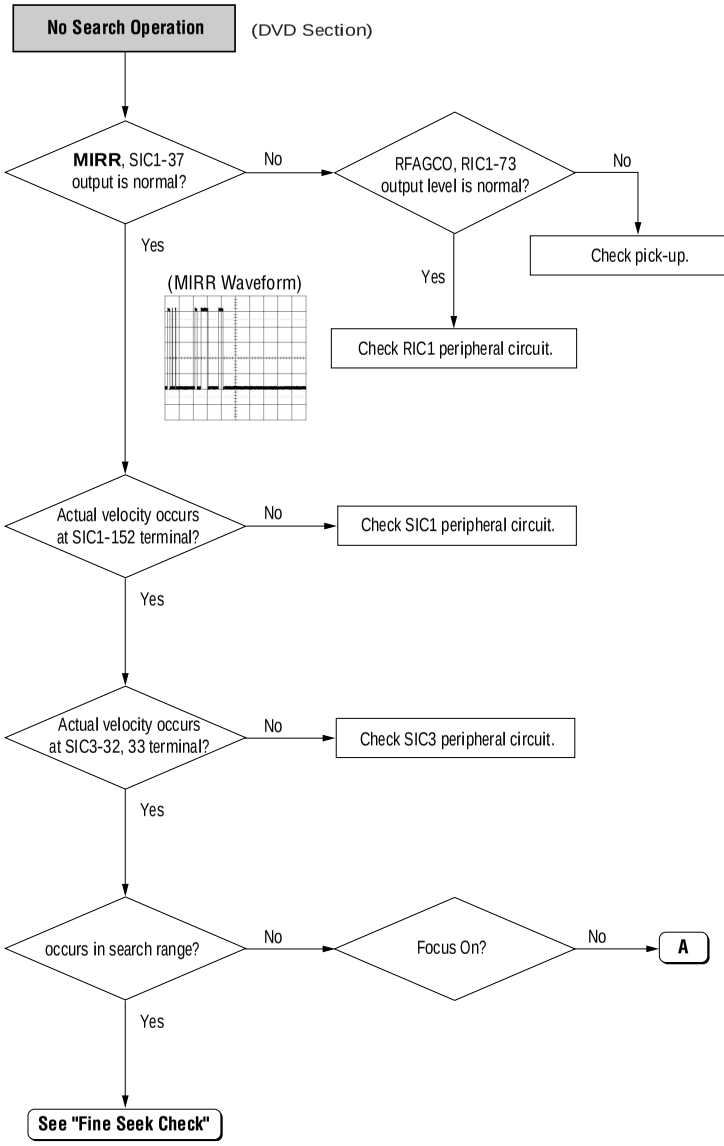

CAPSTAN DOES
NOT ROTATE
(VCR Section)
CN604-2
15V
NO
CHECK
B+ IN THE POWER BLOCK
YES
CN604-3
AL 5V
NO
CHECK
5V AT AL5V LINE
IN THE POWER BLOCK
YES
PLACE THE VCR
IN PLAY MODE
CN604-9
3.2V
NO
IC601-35
OUTPUT(PWM)
NO
CHANGE
IC601
YES
YES
CHECK R607
CN604-5
2.6V
NO
CN601-33
OUTPUT(PWM)
NO
CHECK
IC601
YES
YES
CHECK
CAPSTAN MOTOR
CHECK
R615, C606, R671

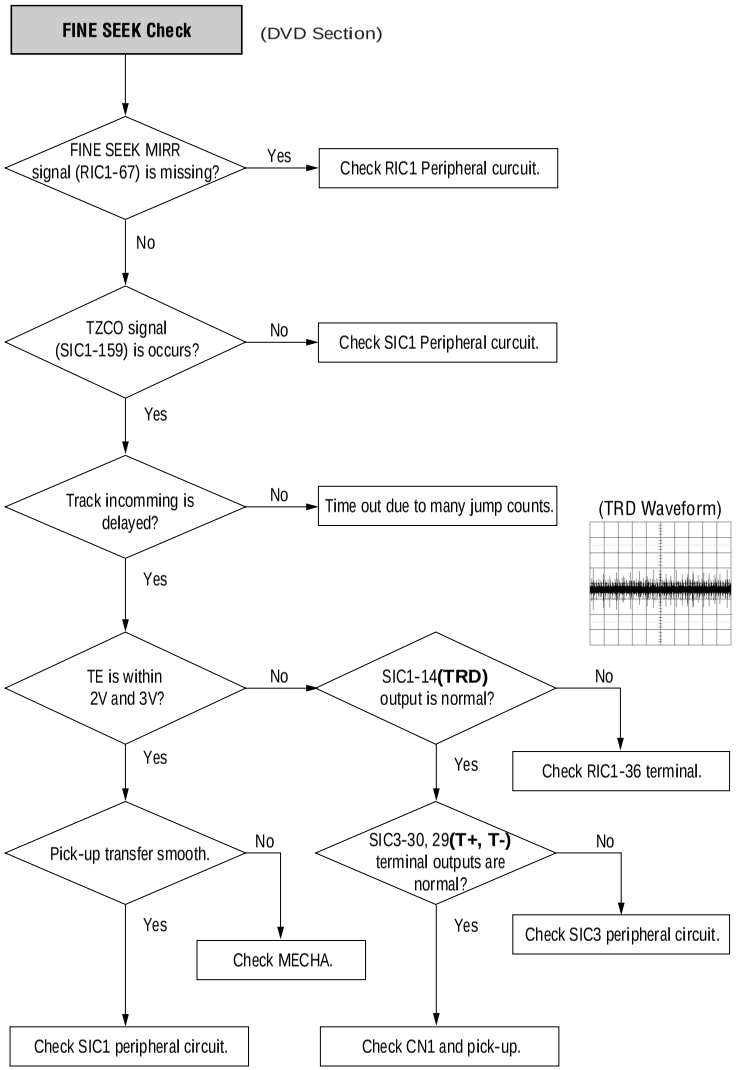

DRUM DOES NOT ROTATE
(VCR Section)
CN604-6 12V
NO
CHECK 12V AT PC12V LINE IN THE POWER BLOCK
YES
CN604-3 5V
NO
CHECK 5V LINE
YES
CN604-12 2.5V
NO
CN601-34 PWM OUT
NO
CHANGE IC601
YES
CHECK CYLINDER MOTOR
CHECK R631, R617, R618, C609, C610

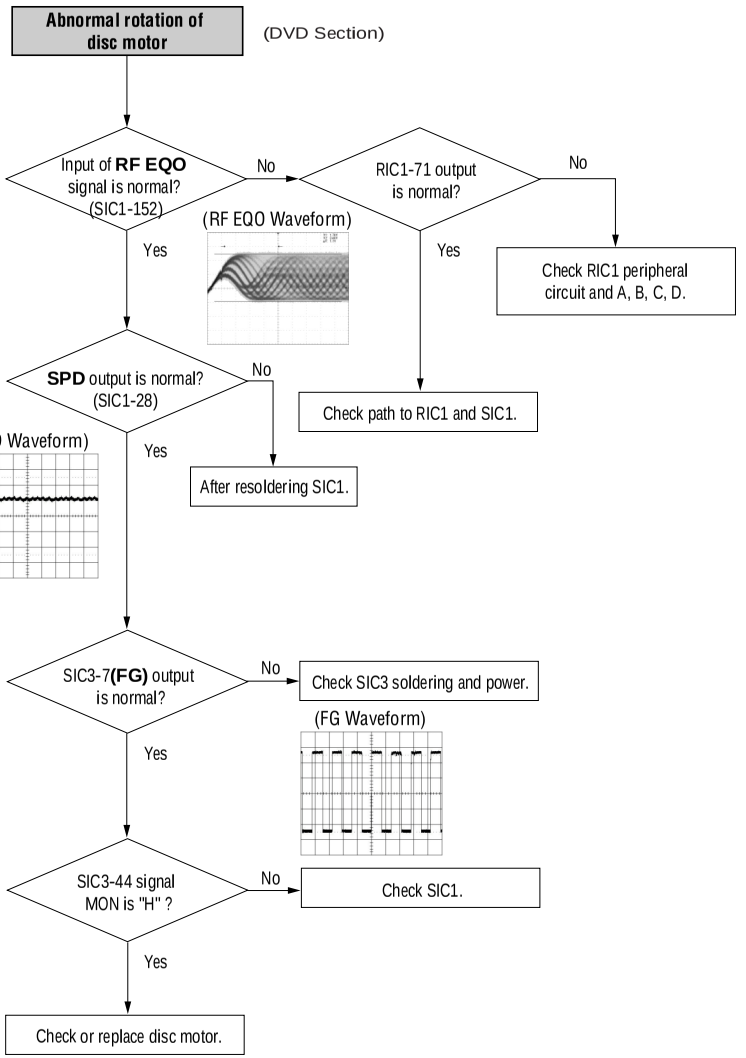

No focus incoming
(DVD Section)
A
FE in SIC1-8 is within specified range?
No
Check RIC1 and A, B, C, D input.
(FE Waveform)
Yes
SIC3-10, 11 output are normal?
No
Check SIC3.
Yes
Check open state from SIC3 to pick-up.

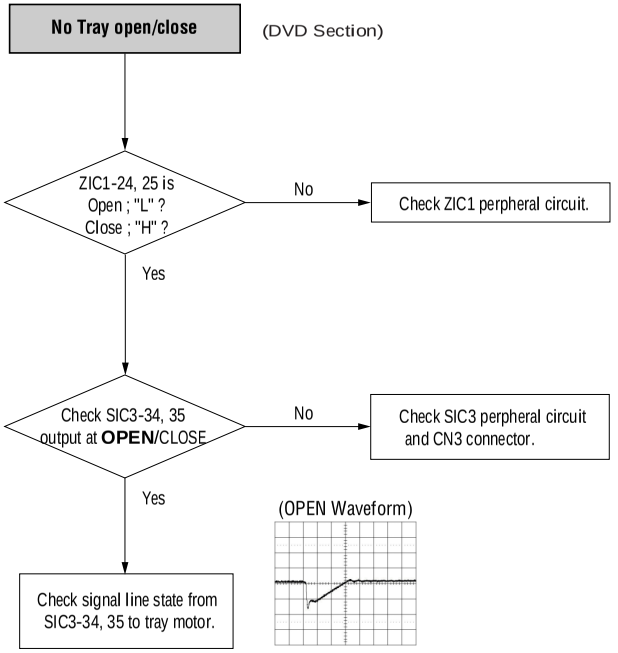

No pick-up home positing
(DVD Section)
SIC1-26(SLD) output is normal? (1.7V ~ 1.8V)
No
Check SIC1
(SLD Waveform)
Yes
SLED+, SLED- SIC3-32, 33 output are normal?
No
Check SIC3
Yes
Check the Sled Motor and connection

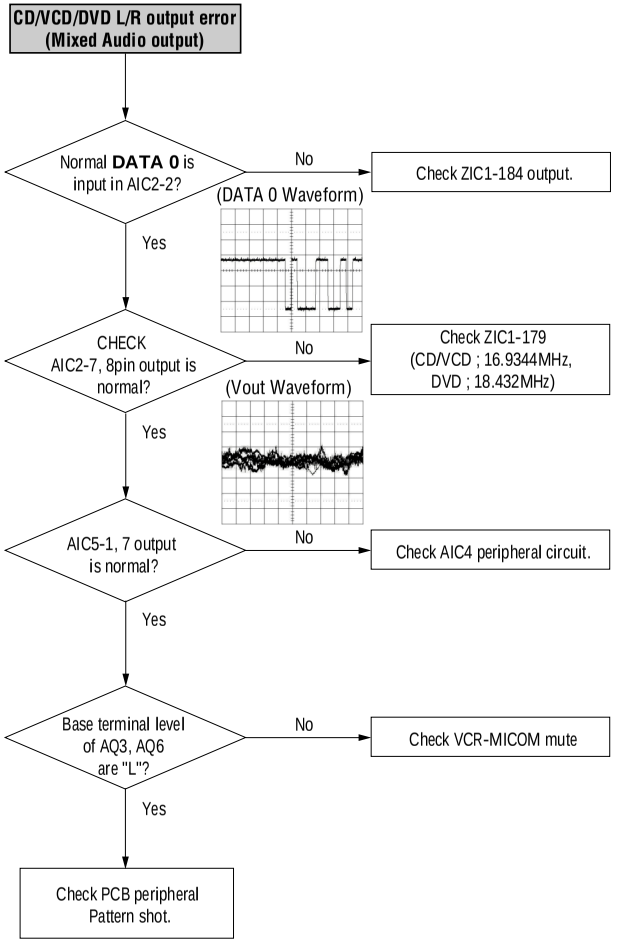

NO DVD LD ON
(DVD Section)
RIC1-22 is 5V?
No
Check RIC1
Yes
Divide RQ2 emitter terminal voltage and 5V real voltage difference into 10ohm.
Yes
Current exceeds 0.1A?
No
Open check in related circuit.
Yes
LD out pick-up replace.

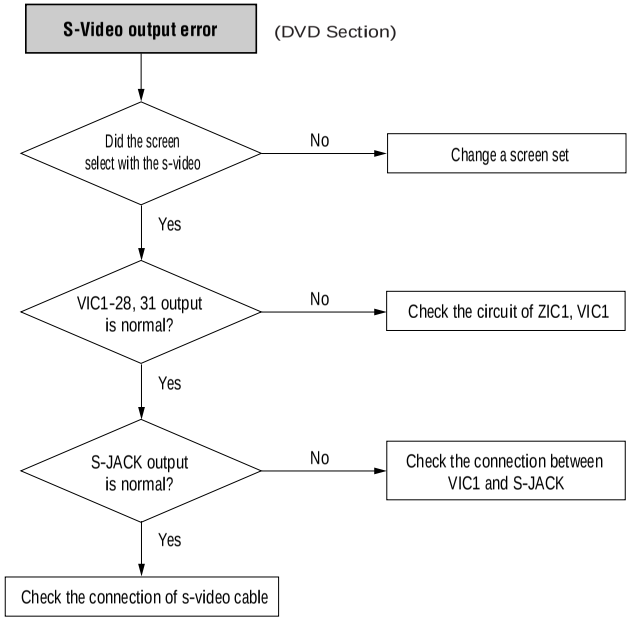

No Search Operation
(DVD Section)
MIRR, SIC1-37 output is normal?
No
RFAGCO, RIC1-73 output level is normal?
No
Check pick-up.
Yes
(MIRR Waveform)
Yes
Check RIC1 peripheral circuit.
Yes
Actual velocity occurs at SIC1-152 terminal?
No
Check SIC1 peripheral circuit.
Yes
Actual velocity occurs at SIC3-32, 33 terminal?
No
Check SIC3 peripheral circuit.
Yes
occurs in search range?
No
Focus On?
No
A
Yes
See "Fine Seek Check"

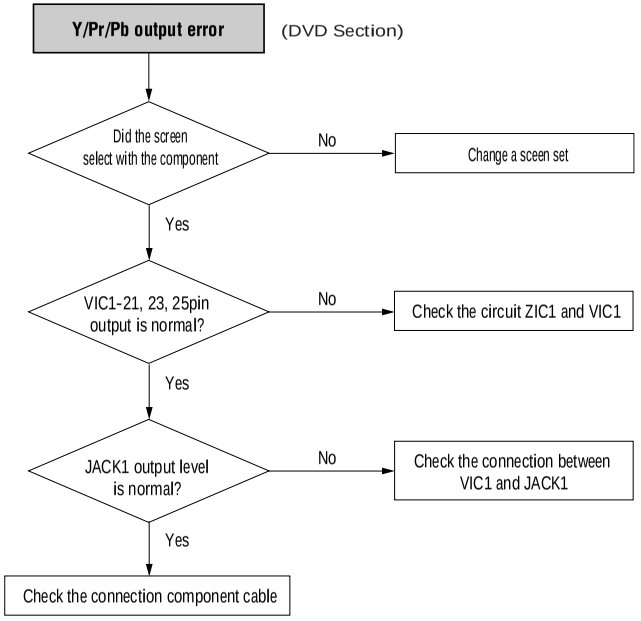

FINE SEEK Check
(DVD Section)
FINE SEEK MIRR signal (RIC1-67) is missing?
Yes
Check RIC1 Peripheral curcuit.
No
TZCO signal (SIC1-159) is occurs?
No
Check SIC1 Peripheral curcuit.
Yes
Track incomming is delayed?
No
Time out due to many jump counts.
(TRD Waveform)
Yes
TE is within 2V and 3V?
No
SIC1-14(TRD) output is normal?
No
Check RIC1-36 terminal.
Yes
Yes
Pick-up transfer smooth.
No
SIC3-30, 29(T+, T-) terminal outputs are normal?
No
Check SIC3 peripheral circuit.
Yes
Yes
Check MECHA.
Check SIC1 peripheral circuit.
Check CN1 and pick-up.

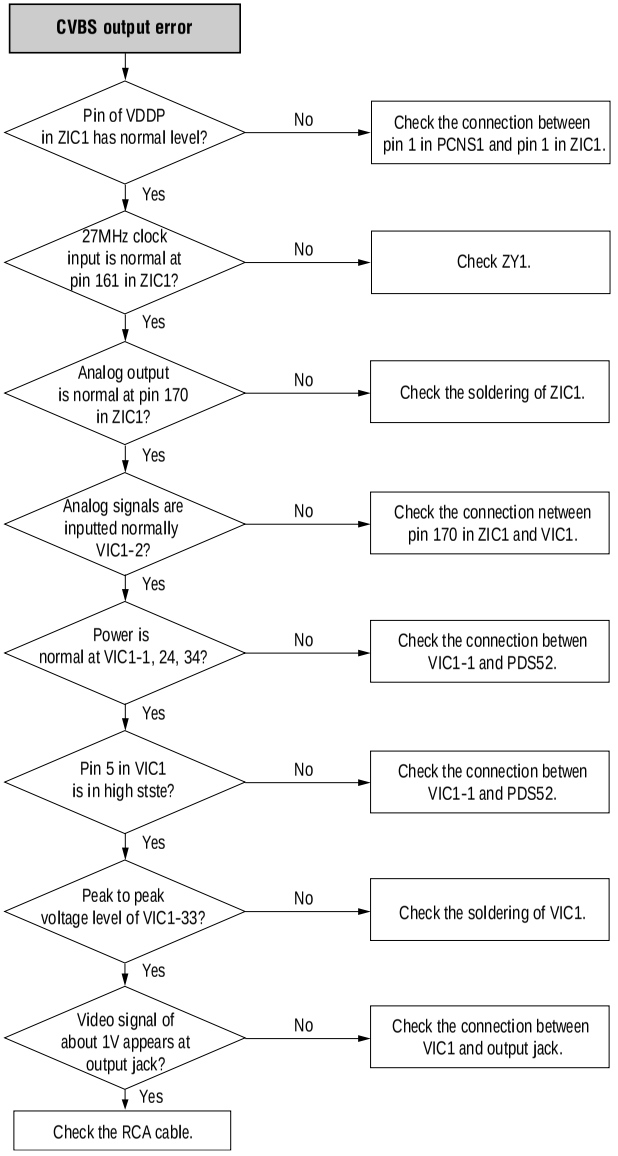

Abnormal rotation of disc motor
(DVD Section)
Input of RF EQO signal is normal? (SIC1-152)
No
RIC1-71 output is normal?
No
(RF EQO Waveform)
Yes
Yes
Check RIC1 peripheral circuit and A, B, C, D.
SPD output is normal? (SIC1-28)
No
Check path to RIC1 and SIC1.
(SPD Waveform)
Yes
After resoldering SIC1.
SIC3-7(FG) output is normal?
No
Check SIC3 soldering and power.
(FG Waveform)
Yes
SIC3-44 signal MON is "H" ?
No
Check SIC1.
Yes
Check or replace disc motor.


No Tray open/close
(DVD Section)
ZIC1-24, 25 is Open ; "L" ? Close ; "H" ?
No
Check ZIC1 perpheral circuit.
Yes
Check SIC3-34, 35 output at OPEN/CLOSE
No
Check SIC3 perpheral circuit and CN3 connector.
Yes
(OPEN Waveform)
Check signal line state from SIC3-34, 35 to tray motor.


CD/VCD/DVD L/R output error (Mixed Audio output)
Normal DATA 0 is input in AIC2-2?
No
Check ZIC1-184 output.
(DATA 0 Waveform)
Yes
CHECK AIC2-7, 8pin output is normal?
No
Check ZIC1-179 (CD/VCD ; 16.9344MHz, DVD ; 18.432MHz)
(Vout Waveform)
Yes
AIC5-1, 7 output is normal?
No
Check AIC4 peripheral circuit.
Yes
Base terminal level of AQ3, AQ6 are "L"?
No
Check VCR-MICOM mute
Yes
Check PCB peripheral Pattern shot.


S-Video output error
(DVD Section)
Did the screen select with the s-video
No
Change a screen set
Yes
VIC1-28, 31 output is normal?
No
Check the circuit of ZIC1, VIC1
Yes
S-JACK output is normal?
No
Check the connection between VIC1 and S-JACK
Yes
Check the connection of s-video cable


Y/Pr/Pb output error
(DVD Section)
Did the screen select with the component
No
Change a sceen set
Yes
VIC1-21, 23, 25pin output is normal?
No
Check the circuit ZIC1 and VIC1
Yes
JACK1 output level is normal?
No
Check the connection between VIC1 and JACK1
Yes
Check the connection component cable


CVBS output error
Pin of VDDP in ZIC1 has normal level?
No
Check the connection between pin 1 in PCNS1 and pin 1 in ZIC1.
Yes
27MHz clock input is normal at pin 161 in ZIC1?
No
Check ZY1.
Yes
Analog output is normal at pin 170 in ZIC1?
No
Check the soldering of ZIC1.
Yes
Analog signals are inputted normally VIC1-2?
No
Check the connection netween pin 170 in ZIC1 and VIC1.
Yes
Power is normal at VIC1-1, 24, 34?
No
Check the connection betwen VIC1-1 and PDS52.
Yes
Pin 5 in VIC1 is in high stste?
No
Check the connection betwen VIC1-1 and PDS52.
Yes
Peak to peak voltage level of VIC1-33?
No
Check the soldering of VIC1.
Yes
Video signal of about 1V appears at output jack?
No
Check the connection between VIC1 and output jack.
Yes
Check the RCA cable.

9-929-753-82

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Home Video Company

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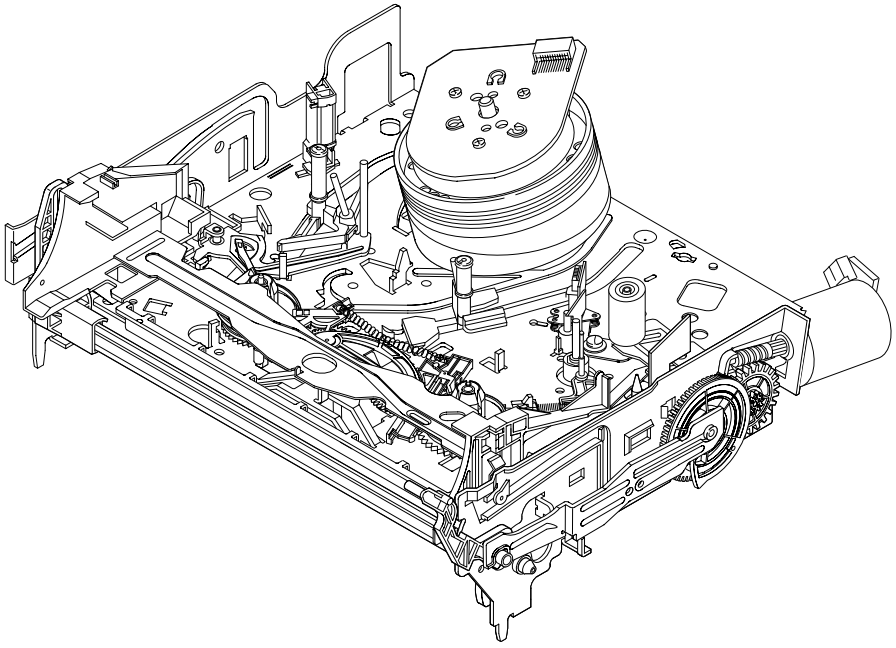
VHS MECHANICAL ADJUSTMENT MANUAL VII

TS-10 MECHANISM

Please use this manual with the service manual.



VHS MECHANISM DECK

SONY®

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1. Disassembly and Reassembly

1-1 Deck Parts Locations

1-1-1 Top View

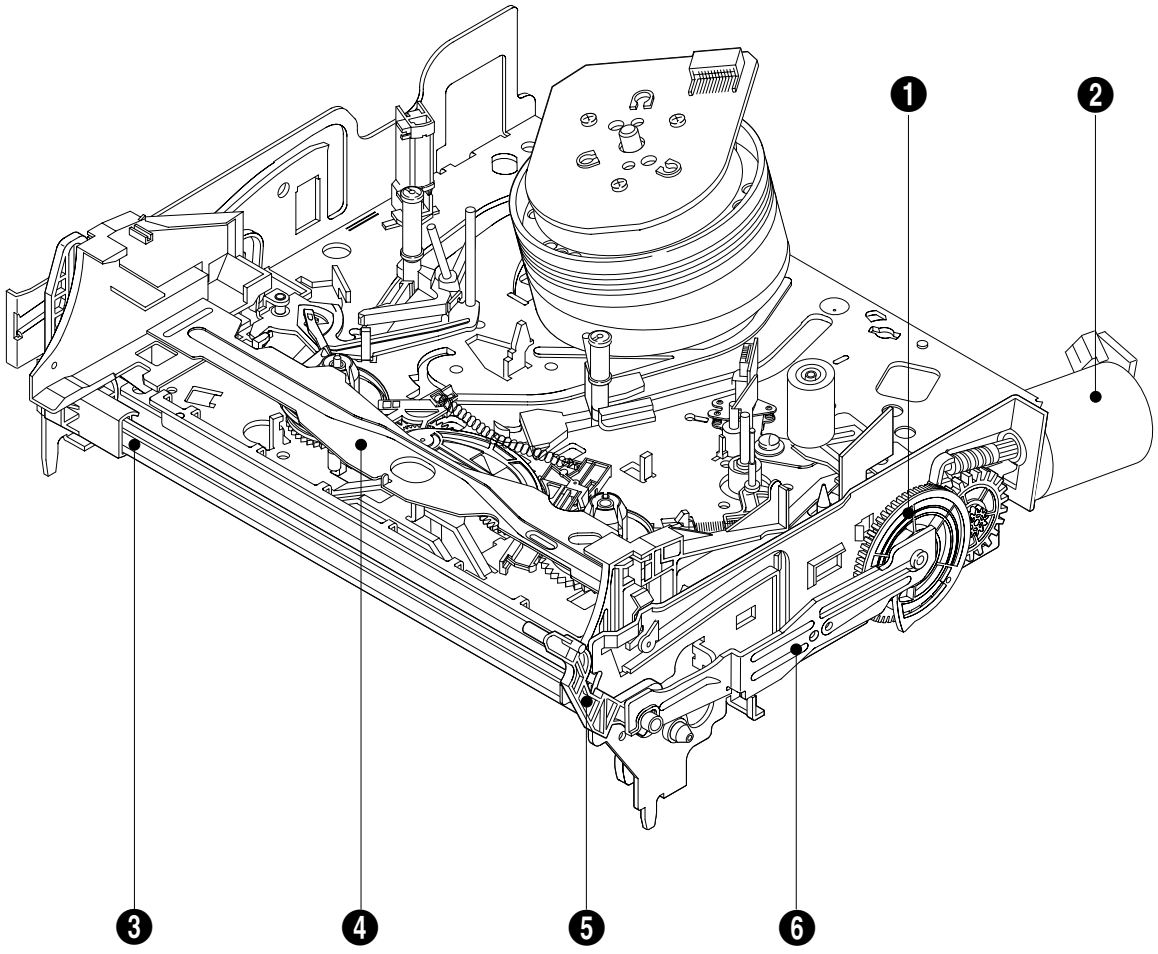


Fig. 1-1 Top parts Location-1

1. GEAR FL CAM
2. MOTOR LOADING ASS'Y
3. LEVER FL ARM ASS'Y
4. HOLDER FL CASSETTE ASS'Y
5. LEVER FL DOOR
6. SLIDER FL DRIVE

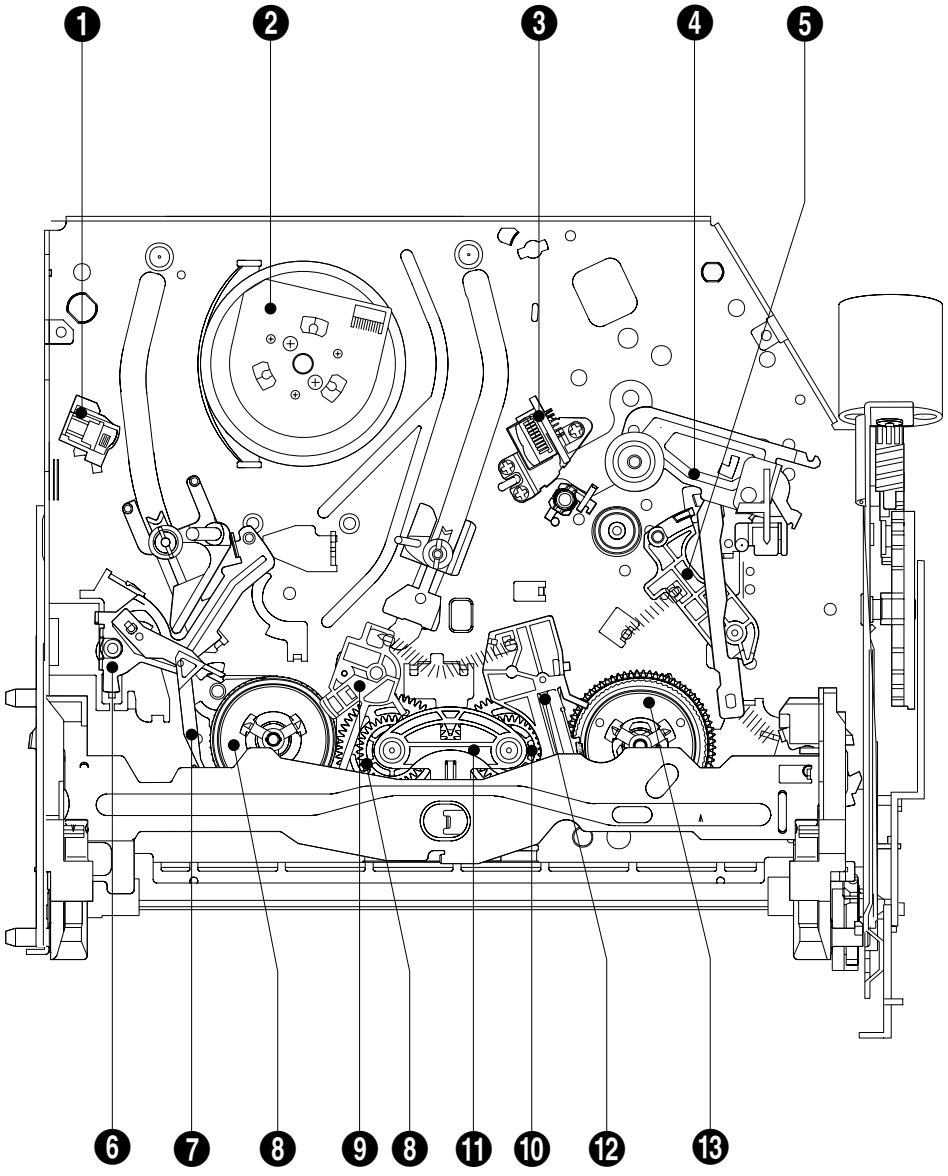


Fig. 1-2 Top Parts Location-2

❶ FE HEAD
❷ CYLINDER ASS'Y
❸ ACE HEAD ASS'Y
❹ LEVER UNIT PINCH ASS'Y
❺ LEVER #9 GUIDE ASS'Y
❻ LEVER TENSION ASS'Y
❼ BAND BRAKE ASS'Y
❽ DISK S REEL
❾ LEVER S BRAKE ASS'Y
❿ GEAR IDLE
⓫ LEVER IDLE
⓬ LEVER T BRAKE ASS'Y
⓭ DISK T REEL

1-1-2 Bottom View

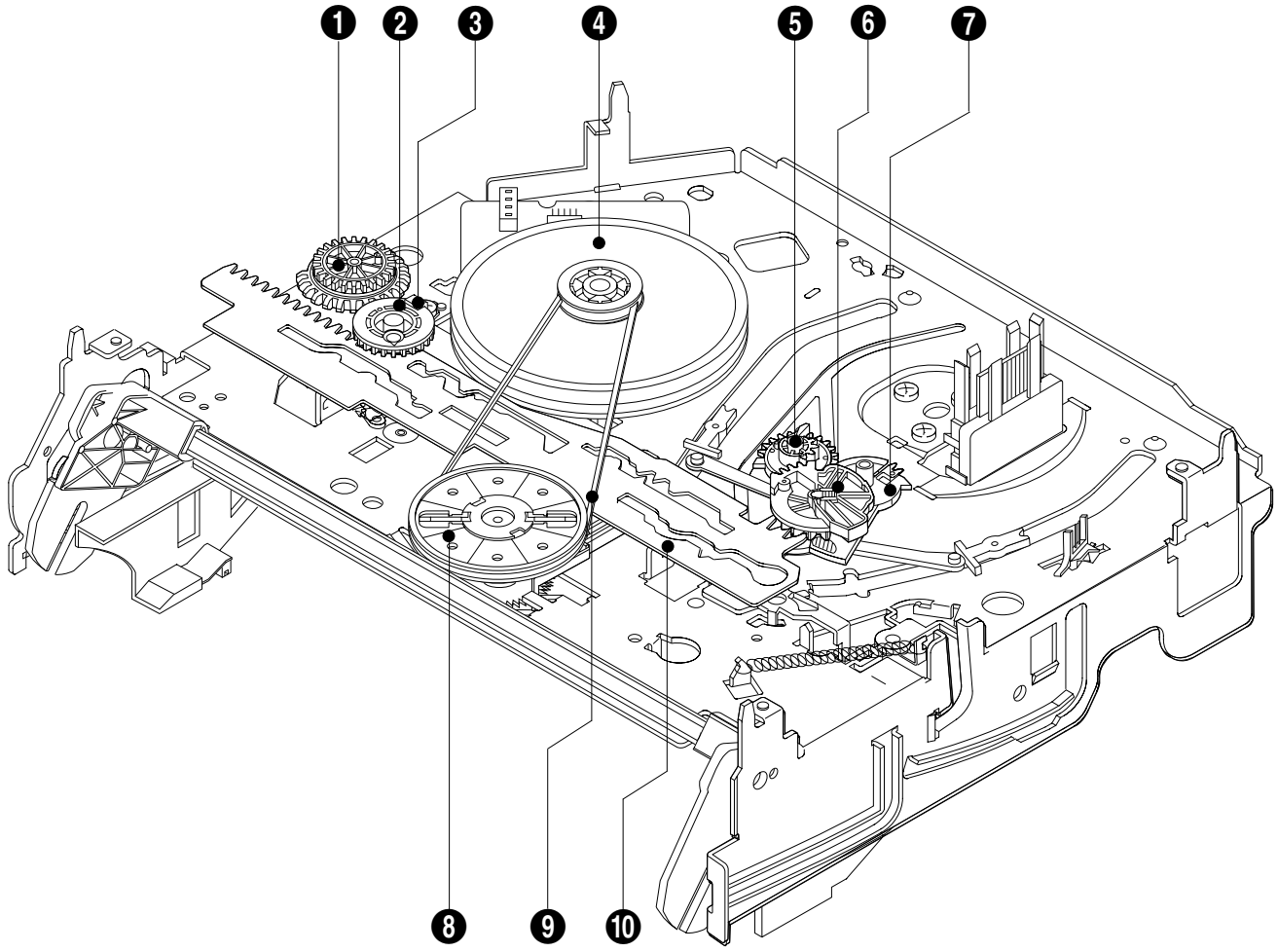


Fig. 1-3 Bottom Parts Location

❶ GEAR JOINT 1
❷ GEAR JOINT 2
❸ BRACKET GEAR
❹ MOTOR CAPSTAN ASS'Y
❺ LEVER T LOAD ASS'Y
❻ GEAR LOADING DRIVE
❼ LEVER S LOAD ASS'Y
❽ HOLDER CLUTCH ASS'Y
❾ BELT PULLEY
❿ SLIDER CAM

1-2-1 Lever FL Door Removal

1) Push the Holder FL Cassette Ass'y ❶ about 20mm in the direction of arrow “A”.
2) Rotate the Lever FL Door ❷ in the direction of arrow “B”.
3) Release the Hook ❸ and Remove the Lever FL Door ❷ in the direction of arrow “C”.

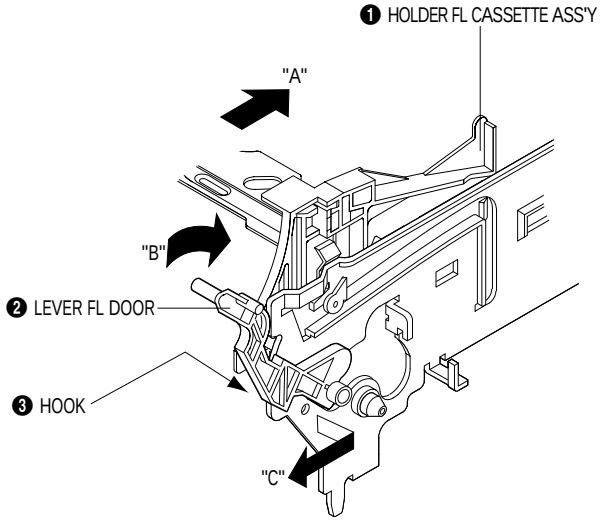


Fig. 1-4 Lever FL Door Removal

1-2-2 Holder FL Cassette Ass’y Removal

1) Pull the Holder FL Cassette Ass'y ❶ to the eject position.
2) Pull the Holder FL Cassette Ass'y ❶ as grasping the Holder FL Cassette Ass'y ❶ and Lever FL Cassette-R ❷ in the same time to release hooking from Main Base until the Boss [A] of Holder FL Cassette Ass'y ❶ is taken out from the Rail [B].
3) Lift the Holder FL Cassette Ass'y ❶, in this time, you have to grasp the Lever FL Cassette-R ❷ Continuously until the Holder FL Cassette Ass'y ❶ is taken out completely.

Note : Be sure to insert Lever FL Cassette-R ❷ in the direction of “A” to prevent separation and breakage of the Lever FL Cassette-R ❷ at disassembling and reassembling.

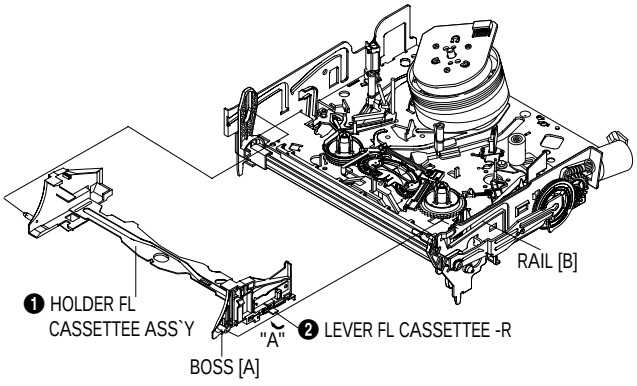


Fig. 1-5 Holder FL Cassette Ass’y Removal

1-2-3 SIider FL Drive, Gear FL Cam Removal

1) Pull the Slider FL Drive ❶ to the front direction.
2) Remove the Slider FL Drive ❶ in the direction of arrow. (Refer to Fig. 1-6)
3) Remove the Gear FL cam ❷.

Note : When reinstalling be sure to reassemble Slider FL drive ❶ after you insert the Boss of Lever FL ARM-R in Groove of Slider Fl drive ❶.

Assembly : Align the Gear FL Cam ❶ with the Gear worm wheel Post as shown drawing.
(Refer to Timing point)

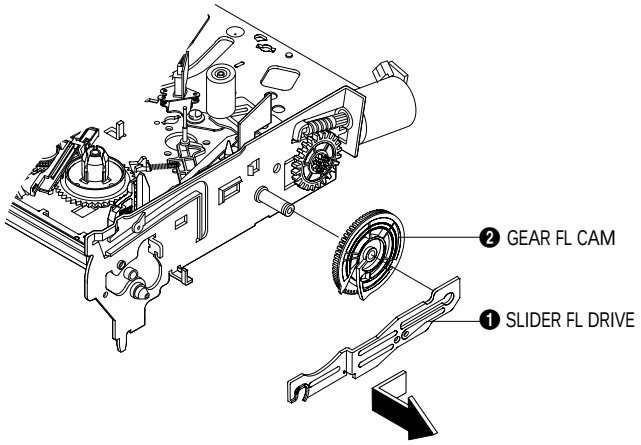


Fig. 1-6 Slider FL Drive Removal

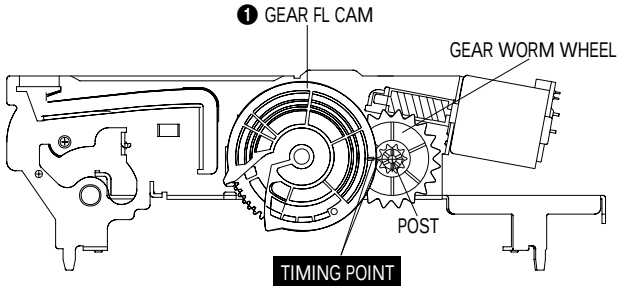


Fig. 1-7 Gear FL Cam, Gear Worm

1-2-4 Lever FL Arm Ass'y Removal

1) Push the hole "A" in the direction of arrow "B" use the pin.(about Dia.2.5)
2) Pull out the Lever FL Arm Ass'y ❶ from the Boss of Main Base.
3) Remove the Lever FL Arm Ass'y ❶ in the direction of arrow "C".

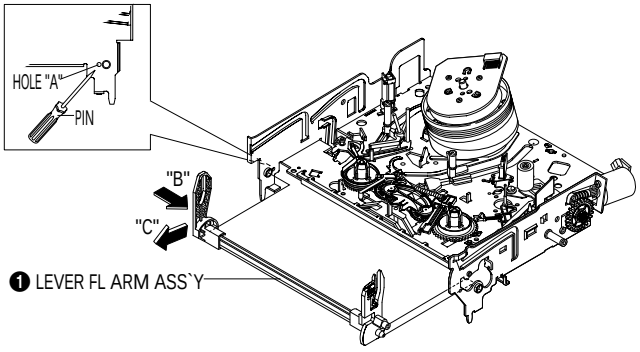


Fig. 1-8 Lever FL Arm Ass'y Removal

1-2-5 Gear Worm Wheel Removal

1) Remove the Gear Worm wheel ❶.

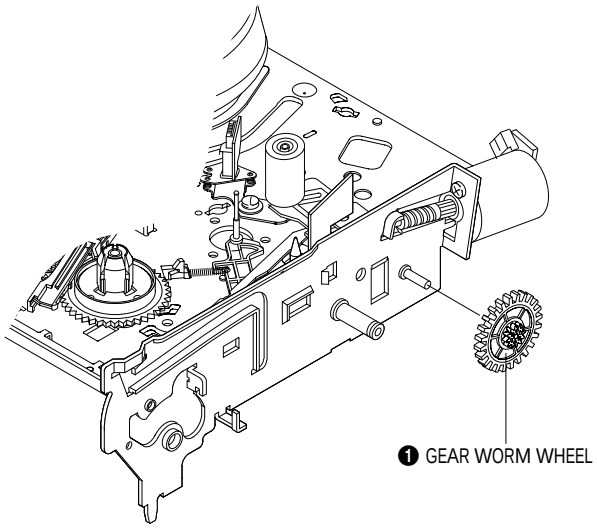


Fig. 1-9 Gear Worm Wheel Removal

1-2-6 Motor Loading Ass'y Removal

1) Remove the screw ❶.
2) Remove the Motor Loading Ass'y ❷.

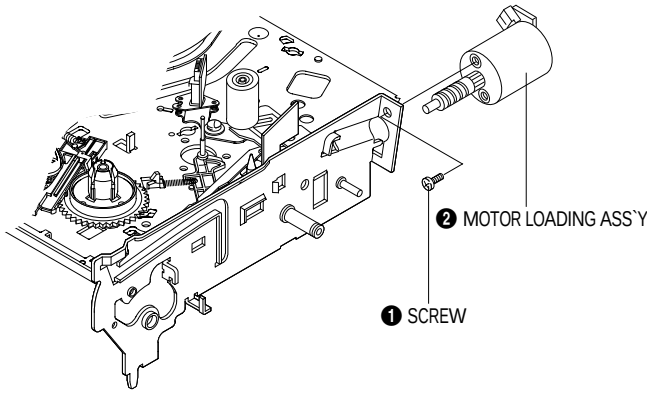


Fig. 1-10 Motor Loading Ass'y Removal

1-2-7 Bracket Gear, Gear Joint 2, 1 Removal

1) Remove the SCREW ❶.
2) Remove the Bracket Gear ❷.
3) Remove the Gear Joint 2 ❸.
4) Remove the Gear Joint 1 ❹.

Assembly :

1) Be sure to align dot mark of Gear Joint 1 ❶ with dot mark of Gear Joint 2 ❷ as shown Fig 1-12. (Refer to Timing point1)
2) Confirm the Timing Point 2 of the Gear Joint 2 ❷ and Slider Cam ❸.

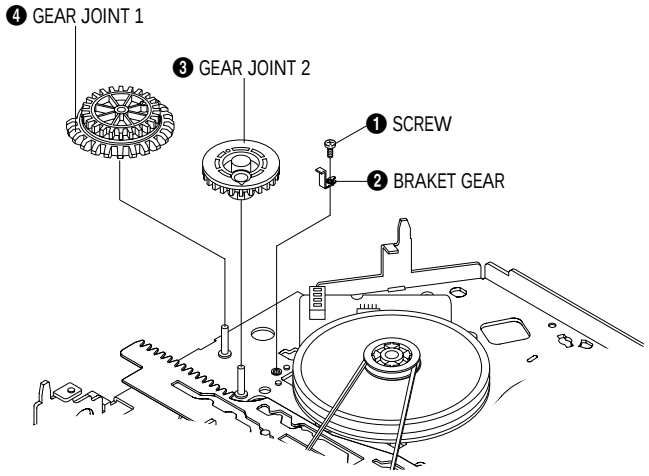


Fig. 1-11 Bracket Gear, Gear Joint 1,2 Removal

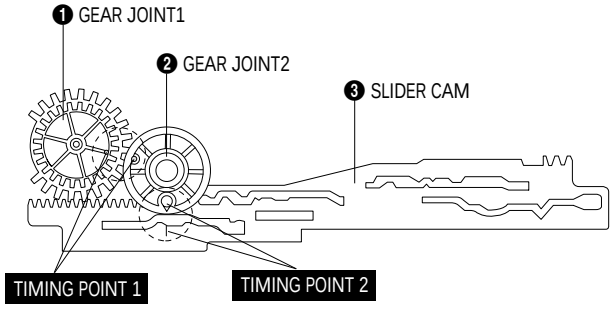


Fig. 1-12 Gear Joint 1,2 Assembly

1-2-8 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Removal

1) Remove the Belt Pulley. (Refer to Fig. 1-30)
2) Remove the Gear Loading Drive ❶ after releasing Hook [A] in the direction arrow as shown in detail drawing.
3) Remove the Slider Cam ❷.
4) Remove the Lever Load S ❸, Link Load S ❺ & Lever Load T ❹, Link Load T ❻.

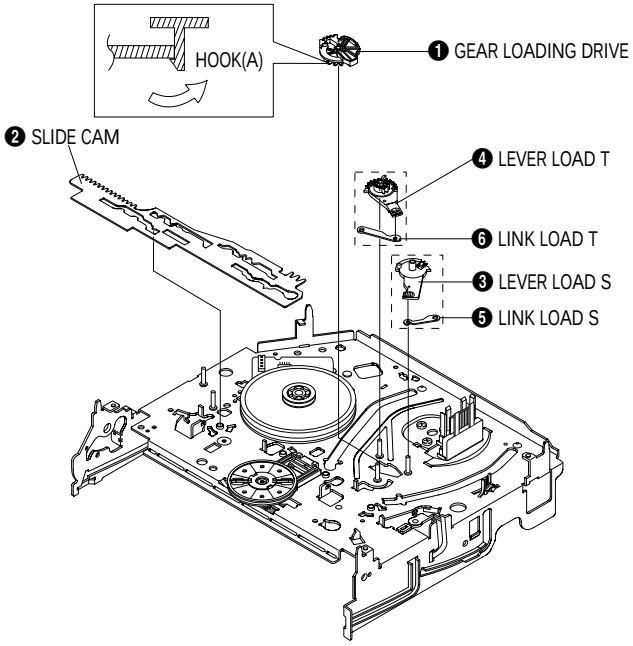


Fig. 1-13 Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y Removal

1-2-9 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly

1) When reinstalling, be sure to align dot of Lever Load T Ass'y ❶ with dot of Lever Load S Ass'y ❷ as shown in drawing, (Refer to Timing Point 1).
2) Insert the Pin A,B,C,D into the Slider Cam ❸ hole,
3) Be sure to align dot of Lever Load T ❶ and dot of Gear Loading Drive ❹, (Refer to Timing Point 2).
4) Aline dot of Gear Loading drive ❹ with mark of Slider Cam ❸ as shown in drawing(Refer to Timing Point 3).

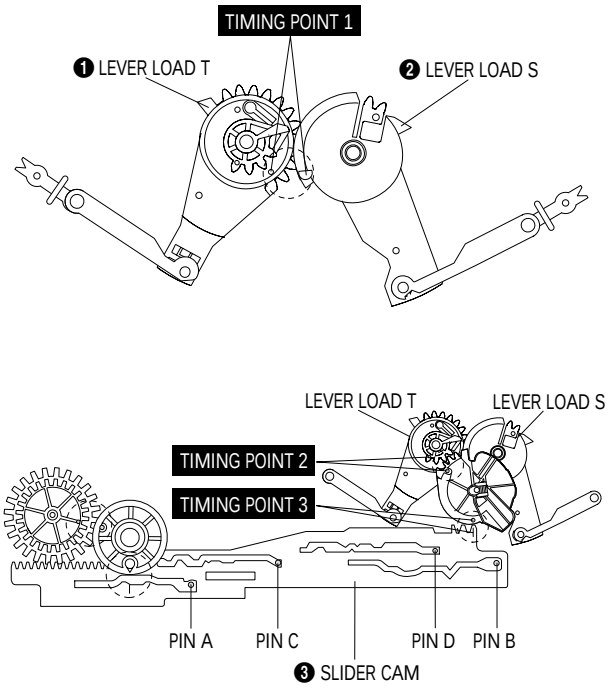


Fig. 1-14 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly

1-2-10 Lever Pinch Drive, Lever Tension Drive Removal

1) Remove the Lever Pinch Drive ❶, Lever Tension Drive ❷.

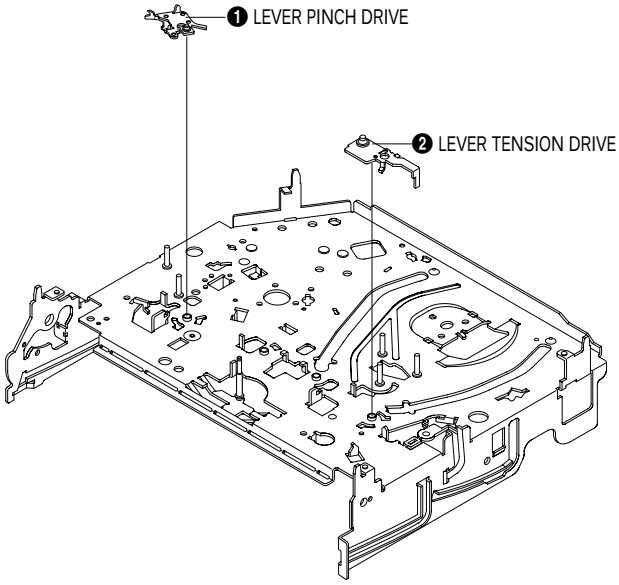


Fig. 1-15 Lever Pinch Drive, Lever Tension Drive Removal

1-2-11 Lever Tension Ass'y, Band Brake Ass'y Removal

1) Remove the Lever Brake S Ass'y (Refer to Fig 1-17).
2) Remove the Spring Tension Lever ❶.
3) Rotate stopper of Main Base in the direction of arrow "A".
4) Lift the Lever Tension Ass'y ❷ & Band brake Ass'y ❸.

Note :
1) When replacing the Lever Tension Ass'y ❷, be sure to apply Grease on the post,
2) Take care not to touch stain on the felt side, and not to be folder and broken Band brake Ass'y
3) After Lever Tension Ass'y seated, Rotate stopper of Main Base to the Mark[B].

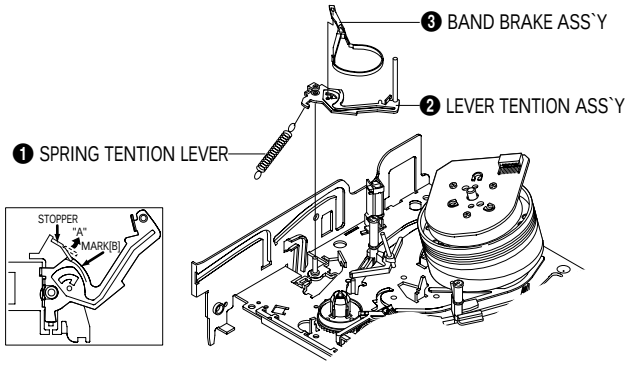


Fig. 1-16 Lever Tension Ass'y, Band Brake Ass'y Removal

1-2-12 Lever Brake S, T Ass'y Removal

1) Release the Hook [A] and the Hook [B], [C] in the direction of arrow as shown in Fig 1-17.
2) Lift the Lever S, T Brake Ass'y ❶, ❷ with spring brake ❸.

Assembly :
1)Assembly the Lever S Brake Ass'y ❶ on the Main Base.
2)Assembly the Lever T Brake Ass'y ❷ with spring brake ❸.

Note : Take extreme care not to be folded and transformed Spring Brake at removing or reinstalling.

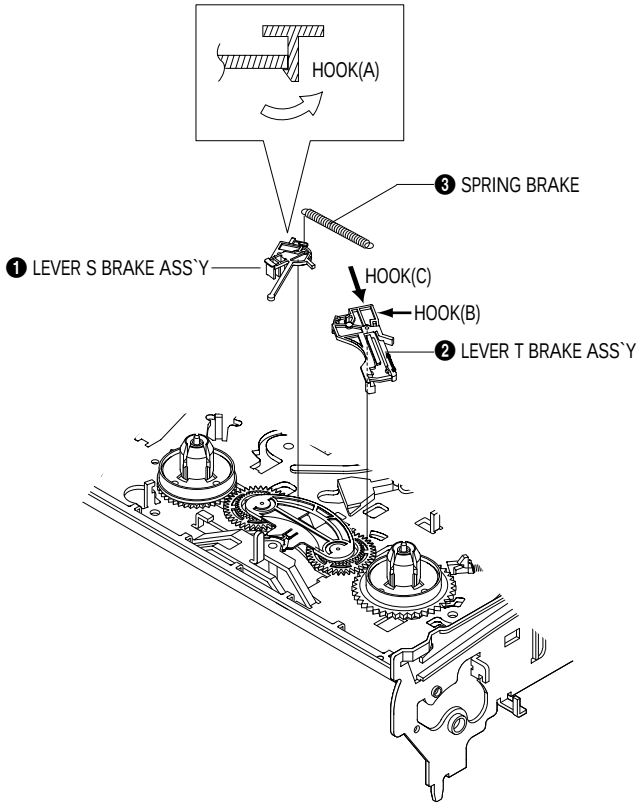


Fig. 1-17 Lever Brake S, T Ass'y Removal

1-2-13 Gear Idle Ass'y Removal

1) Push the Lever Idle ❶ in the direction of arrow "A", "B".
2) Lift the Lever Idle ❶.

Assembly :
1) Apply oil in two Bosses of Lever Idle ❶.
2) Assemble the Gear Idle ❷ with the Lever Idle ❶.

Note : When replacing the Gear Idle ❷, be sure to add oil in the boss of Lever Idle ❶.

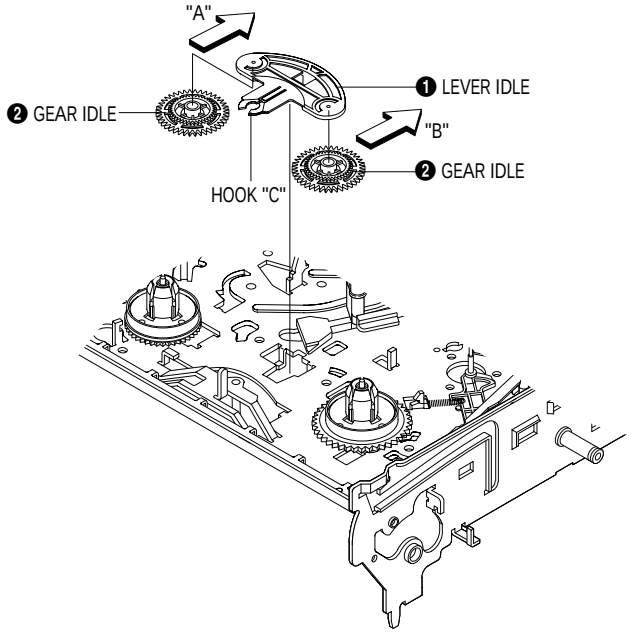


Fig. 1-18 Gear Idle Ass'y Removal

1-2-14 Disk S, T Reel Removal

1) Lift the Disk S, T Reel ❶, ❷.

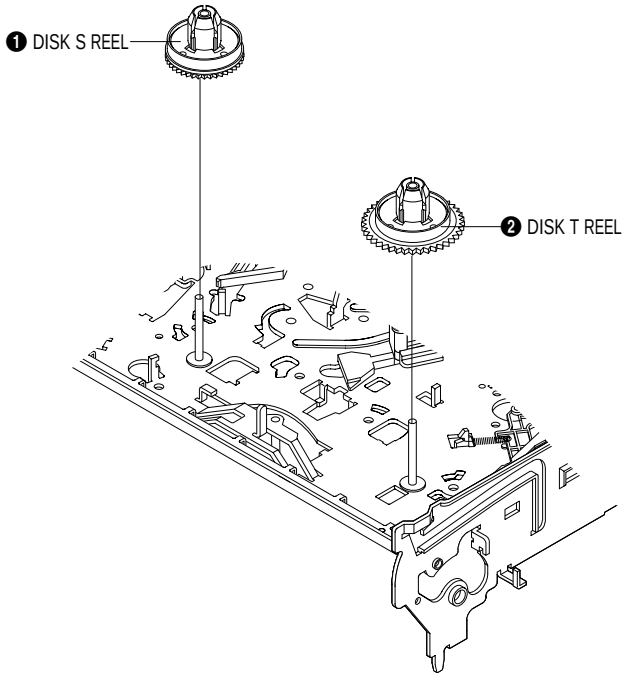


Fig. 1-19 Disk S, T Reel Removal

1-2-15 Holder Clutch Ass'y Removal

1) Remove the Washer Slit ❶.
2) Lift the Holder Clutch Ass'y ❷.

Note : When you reinstall Holder Clutch Ass'y
1) Check the condition of spring as shown in detail A.
2) Don't push Holder Clutch Ass'y down with excessive force Just insert Holder Clutch Ass'y into post center with dead force and Rotate it smoothly.
Be sure to confirm that spring is in the slit of Gear Center Ass'y as shown in detail B.

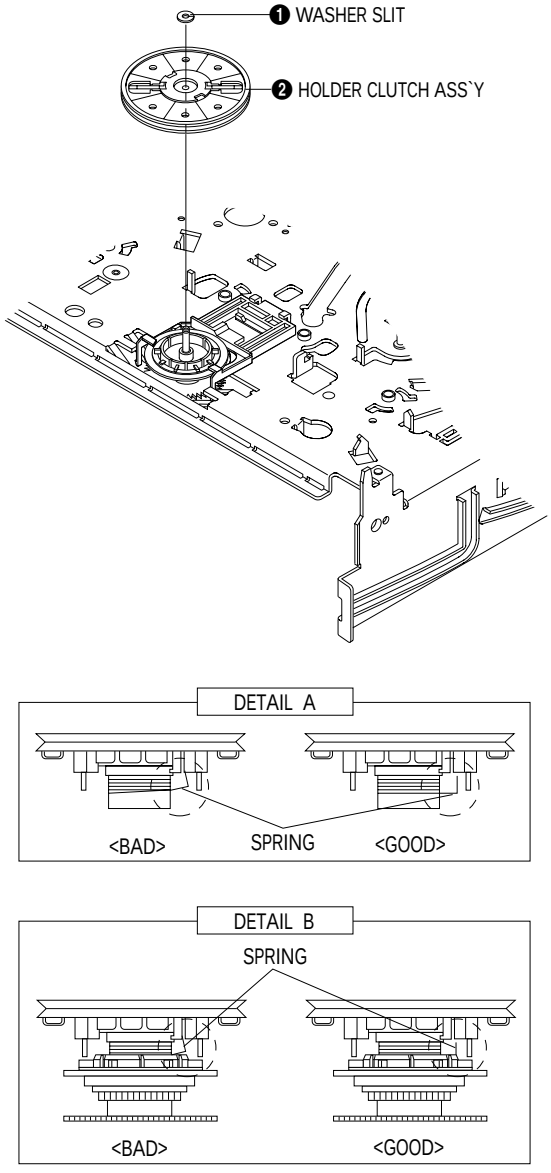


Fig. 1-20 Holder Clutch Ass'y Removal

1-2-16 Lever Up Down Ass'y, Gear Center Ass'y Removal

1) Remove the 2 hooks in the direction of arrow as shown Fig. 1-21 and lift the Lever Up Down Ass'y ❶.
2) Lift the Gear Center Ass'y ❷.

Assembly :
1) Insert the Lever Up Down Ass'y ❶ in the rectangular holes on Main Base as shown in Fig 1-22.
2) Lift the Lever Up Down Ass'y ❶ about 35 degree.(Refer to Fig 1-22)
3) Insert Ring of the Gear Center Ass'y ❷ in the Guide of the Lever Up Down Ass'y ❶.
4) Insert the Gear Center Ass'y ❷ in the post on Main Base.
5) Push down the Lever Up Down Ass'y ❶ for locking of the Hook.

Note :
1) Take care not to separate and sentence does not mark sense.
2) Be sure to confirm that Ring of the Gear Center Ass'y ❷ is in the Guide of the Lever Up Down Ass'y ❶ after finishing assembly of Lever Up

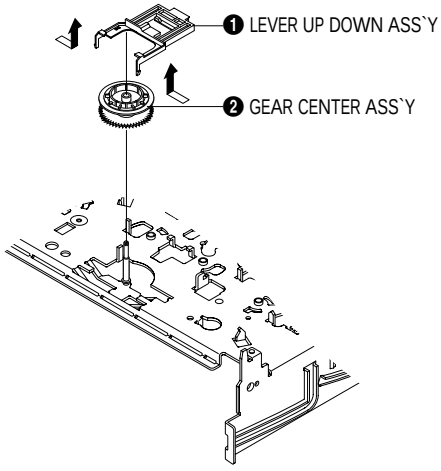


Fig. 1-21 Lever Up Down Ass'y Removal

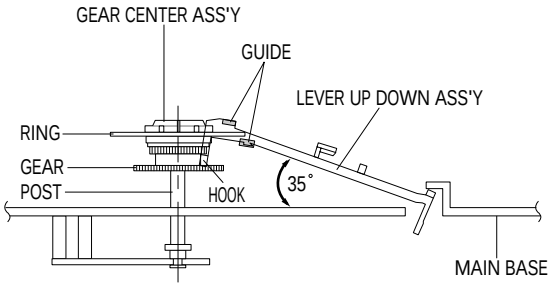


Fig. 1-22 Lever Up Down Ass'y Removal

1-2-17 Guide Cassette Door Removal

1) Lift the Hook [A].
2) Rotate the Guide Cassette Door ❶ in the direction of arrow.

Note : After reinstalling the Guide Cassette Door ❶ sure the Hook [A].

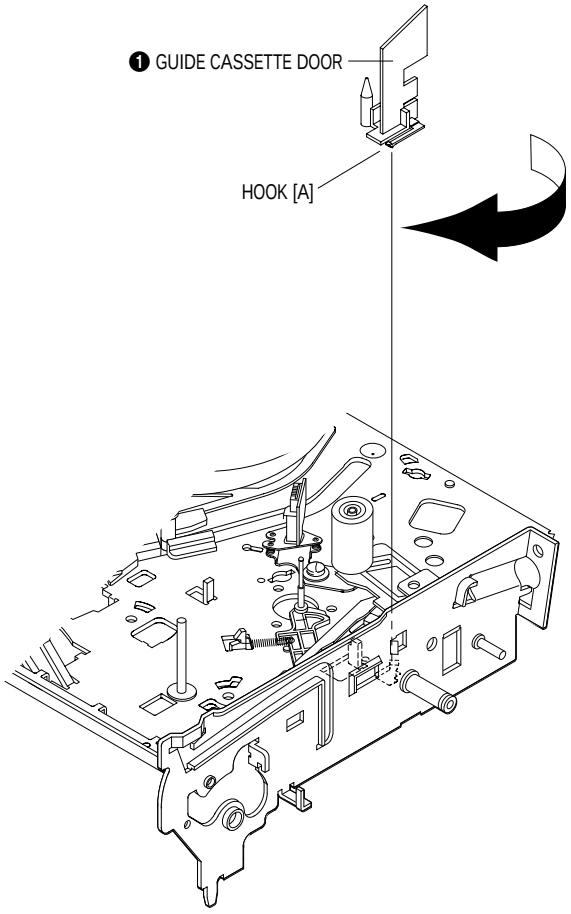


Fig. 1-23 Guide Cassette Door Removal

1-2-18 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

1) Lift the Unit Pinch Ass'y ❶.
2) Remove the Plate Joint ❷ from Lever Pinch Drive.
3) Remove the Spring Pinch Drive ❸.

Note :
1) Take extreme care not to touch the grease on the Roller Pinch.
2) When reinstalling, be sure to apply grease on the post pinch roller.

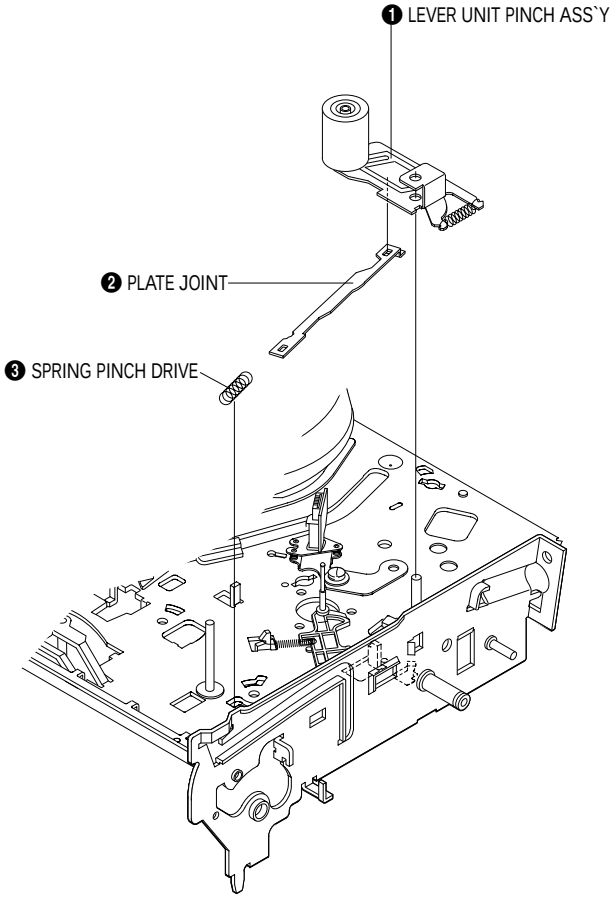


Fig. 1-24 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

1-2-19 Lever #9 Guide Ass'y Removal

1) Remove the Spring #9 Guide ❶.
2) Lift the Spring #9 Guide Ass'y ❷ in the direction of arrow "A".

Note :
1) Take extreme care not to get grease on the tape Guide Post.
2) After reinstalling, check the bottom side of the Post #9 Guide to the top side of Main Base.

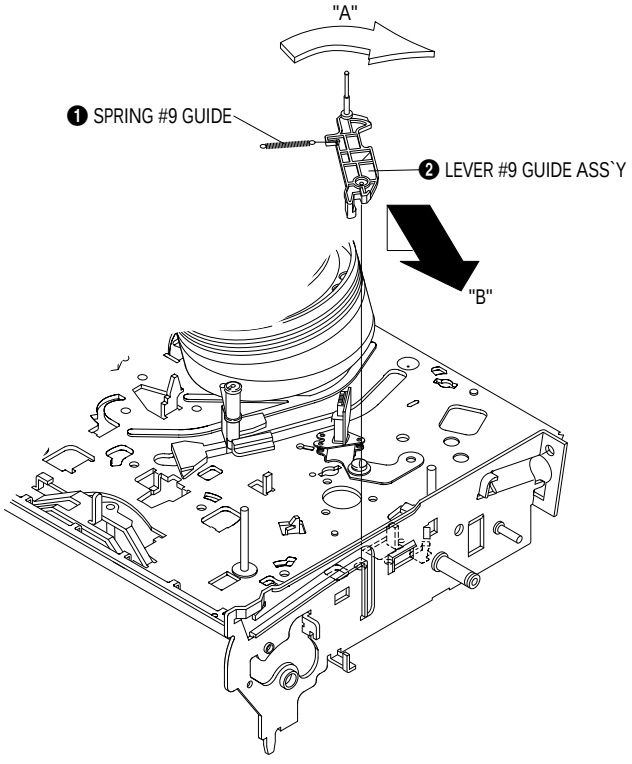


Fig. 1-25 Lever #9 Guide Ass'y Removal

1-2-20 FE Head Removal

1) Remove the screw ❶.
2) Lift the FE Head ❷.

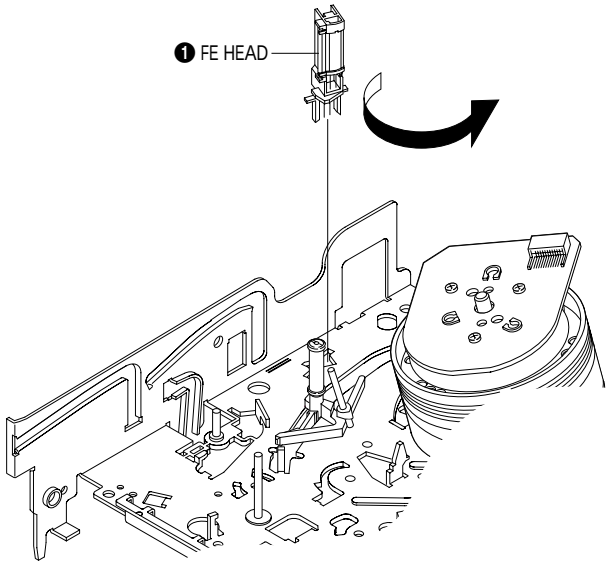


Fig. 1-26 FE Head Removal

1-2-21 ACE Head Removal

1) Pull out the FPC from connector of ACE Head Ass'y ❷.
2) Remove the screw ❶.
3) Lift the ACE Head Ass'y ❷.

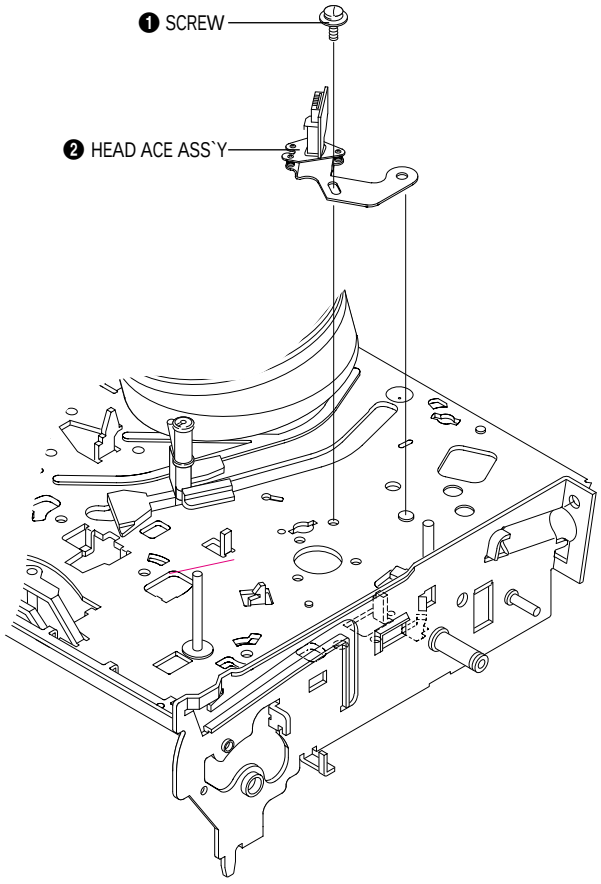


Fig. 1-27 ACE Head Removal

1-2-22 Slider S, T Ass'y Removal

1) Move the Slider S, T Ass'y ❶, ❷ to slot, and then lift it to remove. (Refer to arrow)

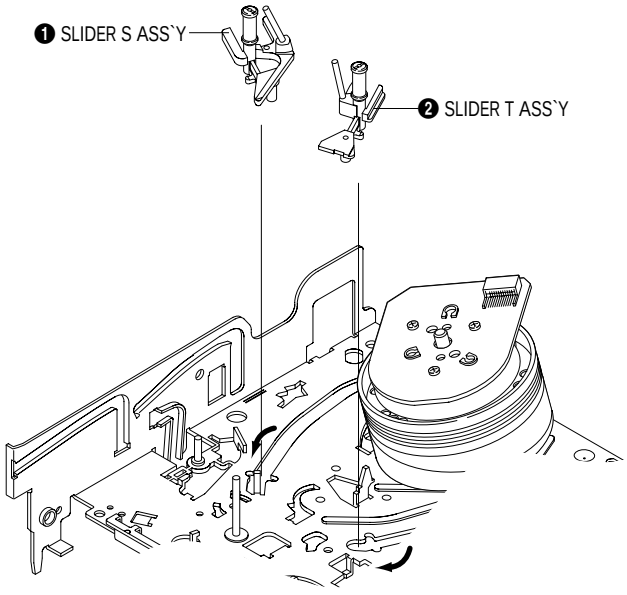


Fig. 1-28 Slider S, T Ass'y Removal

1-2-23 Plate Ground Deck, Cylinder Ass'y Removal

1) Remove the 3 Screws ❶.
2) Lift the Plate Ground Deck ❷.
3) Lift the Cylinder Ass'y ❸.

Assembly :
1) Match the 3 holes in the bottom of Cylinder ass'y ❸ to the 3 holes of Main Base as attending not to drop or knock the Cylinder ass'y ❸.
2) Tighten the 1 Screw ❶.
3) Match the Plate Ground Deck ❷ to the Hole of Base Main.
4) Tighten the other 2 Screws ❶.

Note :
1) Take care not to touch the Cylinder Ass'y ❸ and the tape guide post at reinstalling.
2) When reinstalling, Don't push down too much on Screw Driver.

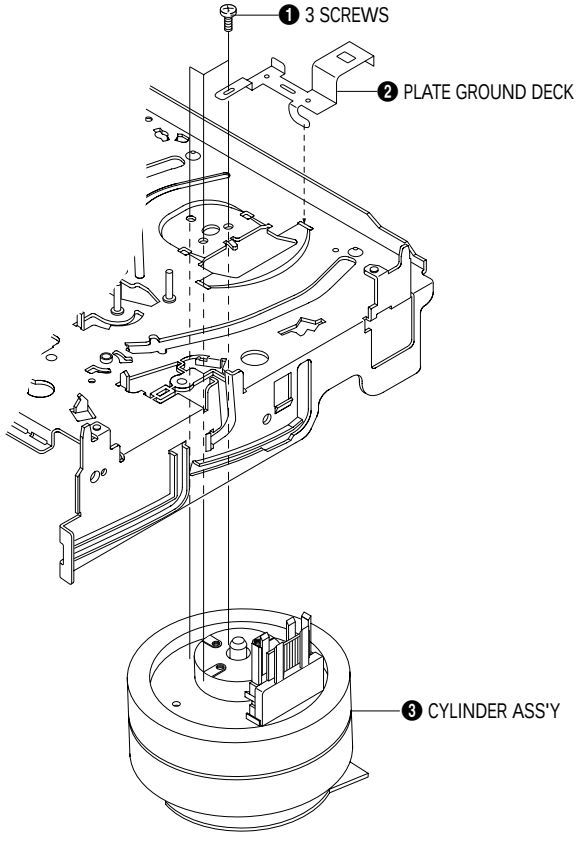


Fig. 1-29 Plate Ground Deck, Cylinder Ass'y Removal

1-2-24 Belt Pulley Removal

1) Remove the Belt Pulley ❶.

Note : Take extreme care not to get grease on Belt Pulley ❶ at assembling or reassembling.

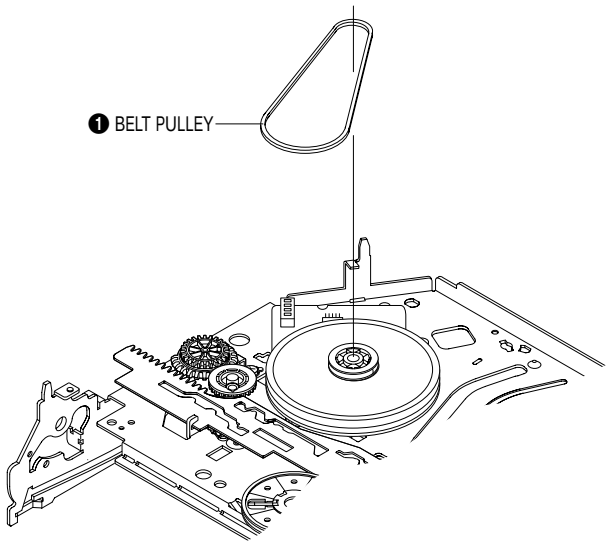


Fig. 1-30 Belt Pulley Removal

1-2-25 Level Head Cleaner Ass'y Removal

1) Release the Hook ❶.
2) Lift the Lever Head Cleaner Ass'y ❷.

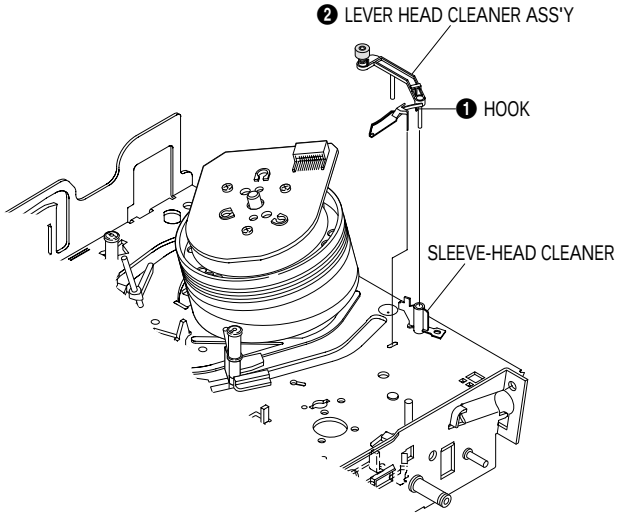


Fig. 1-31 Level Head Cleaner Ass'y Removal

1-2-26 Damper Capstan, Motor Capstan Ass'y Removal

1) Remove the Damper Capstan ❶ in the direction of arrow.
2) Remove the 3 Screws ❷.
3) Remove the Motor Capstan Ass'y ❸.

Assembly :

1) Match the 3 holes of Motor Capstan Ass'y ❸ to the 3 holes of Main Base. Be careful not to drop or knock the Motor Capstan Ass'y ❸.
2) Tighten the 3 Screws ❷ in the direction of arrow as shown detail drawing.
3) Assemble the Damper Capstan ❶.

Note : After tightening screws, check if there is gap between the head of screws and the top side of Main Base. There should have no gap between the head of screws and the top side of Main Base.
After reinstalling, adjusting the tape transport system again.

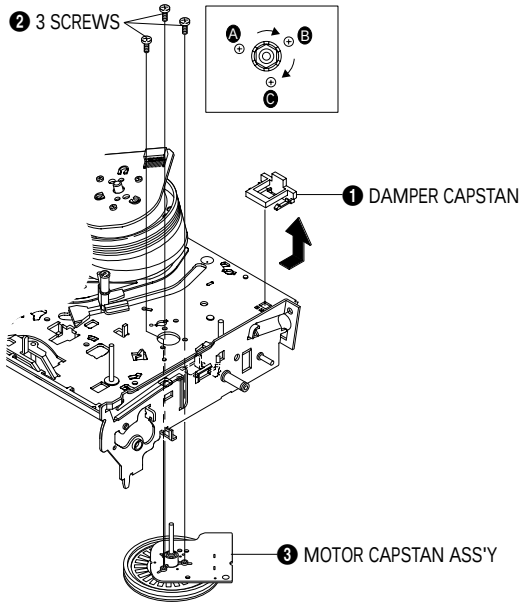


Fig. 1-32 Damper Capstan,Motor Capstan Ass'y Removal

1-2-27 How to Eject the Cassette Tape (If the unit does not operate on condition that is inserted into housing ass'y)

1) Turn the Gear worm ❶ clockwise with screw driver. (Refer to arrow)
(Other method : Remove the Screw of Motor Load Ass'y, Separate the Motor Load Ass'y)

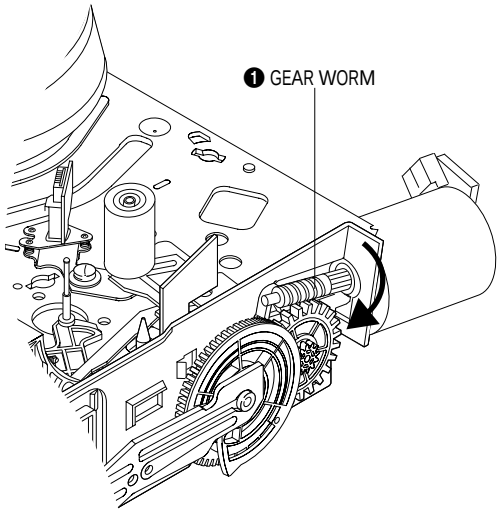


Fig. 1-33

2) When Slider S,T are approched in the position of unloading, rotate holder Clutch counterclockwise after inserting screw driver in the hole of frame's bottom in order to wind the unwinded tape. (Refer to Fig.1-34)
(If you rotate Gear Worm ❶ continuously when tape is in state of unwinding, you may cause a tape contamination by grease and tape damage. Be sure to wind the unwinded tape in the state of set horizontly.)
3) Rotate Gear Worm ❶ clockwise using screw driver again up to the state of eject mode and then pick out the tape.(Refer to Fig.1-33)

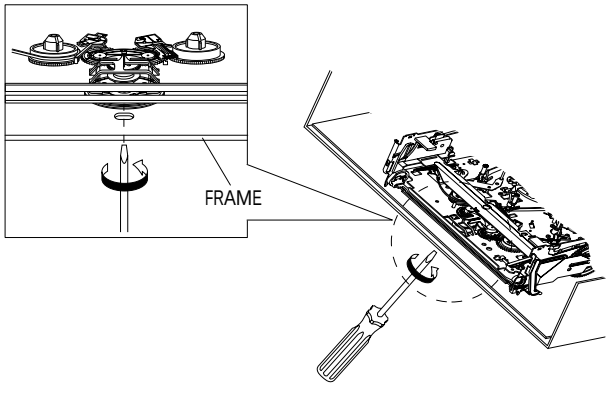


Fig. 1-34

1-3 The table of clearing, Lubrication and replacement time about principal parts

1) The replacement time of parts is not life of parts.
2) The table 1-1 is that the VCR Set is in normal condition (normal temperature, normal humidity).
   The checking period may be changed owing to the condition of use, runtime and environmental conditions.
3) Life of the Cylinder Ass'y is depend on the condition of use.
4) See exploded view for location of each parts.

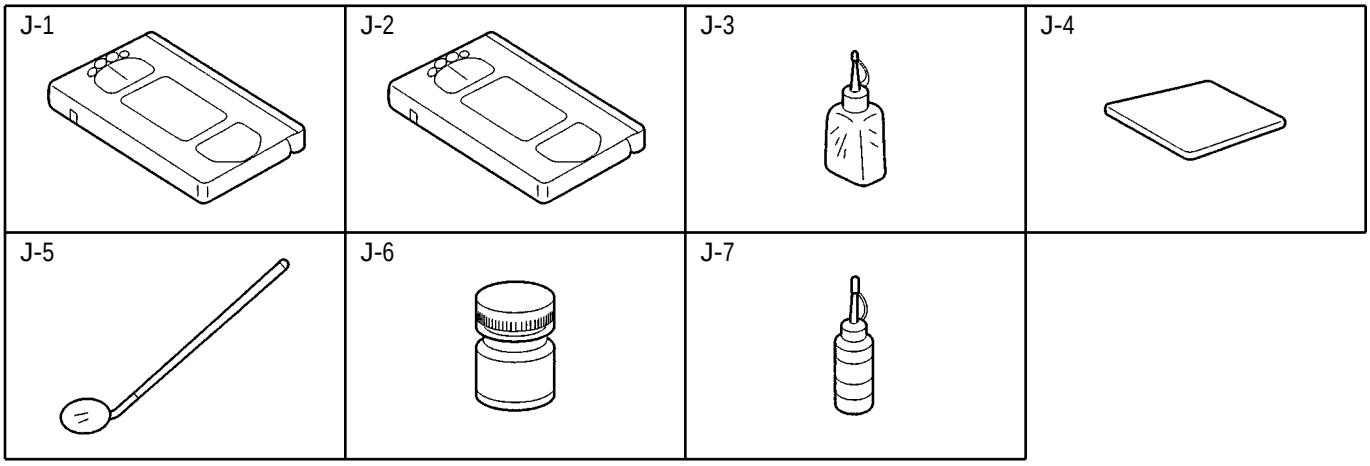
<Table 1-1>

*	Parts Name	Checking Period										Remark
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
TAPE PATH SYSTEM	POST TENSION	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	- To clean the parts, use patch and alcohol (solvent). - After cleaning, use the video tape after alcohol is gone away completely. - We recommend to use oil [NT-68] or solvent. - One or two drops of oil should be applied after cleaning with alcohol.
	SLANT POST S, T	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#8 GUIDE SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	CAPSTAN SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#9 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#3 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	GUIDE ROLLER S, T	Δ	Δ	Δ	O	O	O	O	O	O	O	
	CYLINDER ASS'Y	Δ	O	O	O	O	O	O	O	O	O	
	FE HEAD	Δ	Δ	Δ	O	O	O	O	O	O	O	
	ACE HEAD	Δ	O	O	O	O	O	O	O	O	O	
	PINCH ROLLER	Δ	O	O	O	O	O	O	O	O	O	
	POST REEL S, T		◆		◆		◆		◆		◆	- Periodic time of applying oil (Apply oil after cleaning) - The excessive applying oil may be the cause of malfunction.
	SLEEVE TENSION		◆		◆		◆		◆		◆	
	POST CENTER		◆		◆		◆		◆		◆	
	LEVER IDLE BOSS (2Point)		◆		◆		◆		◆		◆	
DRIVING SYSTEM	CAPSTAN MOTOR PULLEY	Δ	Δ	Δ	Δ	Δ	O	O	O	O	O	
	BELT PULLEY				O	O	O	O	O	O	O	
	HOLDER CLUTCH ASS'Y	Δ	O	O	O	O	O	O	O	O	O	
	GEAR CENTER ASS'Y		O	O	O	O	O	O	O	O	O	
	GEAR IDLE (2Point)		O	O	O	O	O	O	O	O	O	
	LOADING MOTOR		O	O	O	O	O	O	O	O	O	
BRAKE SYSTEM	BAND BRAKE ASS'Y		O	O	O	O	O	O	O	O	O	
	BRAKE T ASS'Y		O	O	O	O	O	O	O	O	O	

Δ : Cleaning O : Check and replacement in necessary ◆ : Add Oil

1-4 Tools and fixtures reguired for service

Ref. No.	Name		Part No.	Caved Jig No.	Remarks
J-1	Torque Measurement Cassette VHT-103S		J-6090-072-A		For FWD & back tension torque measurement
	Torque Measurement Cassette VHT-404S		J-6082-012-A		For CUE and REVIEW torque measurement
J-2	Alignment Tape	KRV-52NE (NTSC)	8-192-605-41		Tape path, Audio azimuth, X-value adjustments
		KRV-51N2 (NTSC)	8-192-605-32		Electrical adjustments, Operation check
		KRV-52PL (PAL)	8-192-605-46		Tape path, Audio azimuth, X-value adjustments
		KRV-51P (PAL)	8-192-605-36		Electrical adjustments, Operation check
J-3	Cleaning Fluid		Y-2031-001-0	—	
J-4	Chamois Leather		2-034-697-00	—	
J-5	Dental Mirror (with Handle)		J-6080-029-A	SL-5052	Tape path and tape traveling adjustments or checks
	Dental Mirror (Mirror)		J-6080-030-1		
J-6	Grease Molykote EM 30LG		J-6090-014-A		Net. 20 g
J-6	Diamond Oil NT-68		7-661-018-18		



<Fig 1-35>

2. Alignment and Adjustment

2-1 Tape Transport System and Adjustment Locations

The tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the following :
1) Noise observed on the screen.
2) Tape damage.
3) Parts replacement in the tape transport system.

Lower flange height of tape guide is used as the reference for the transport adjustment.
To maintain the height of the tape guide and prevent damage, do not apply excessive force onto the main base.

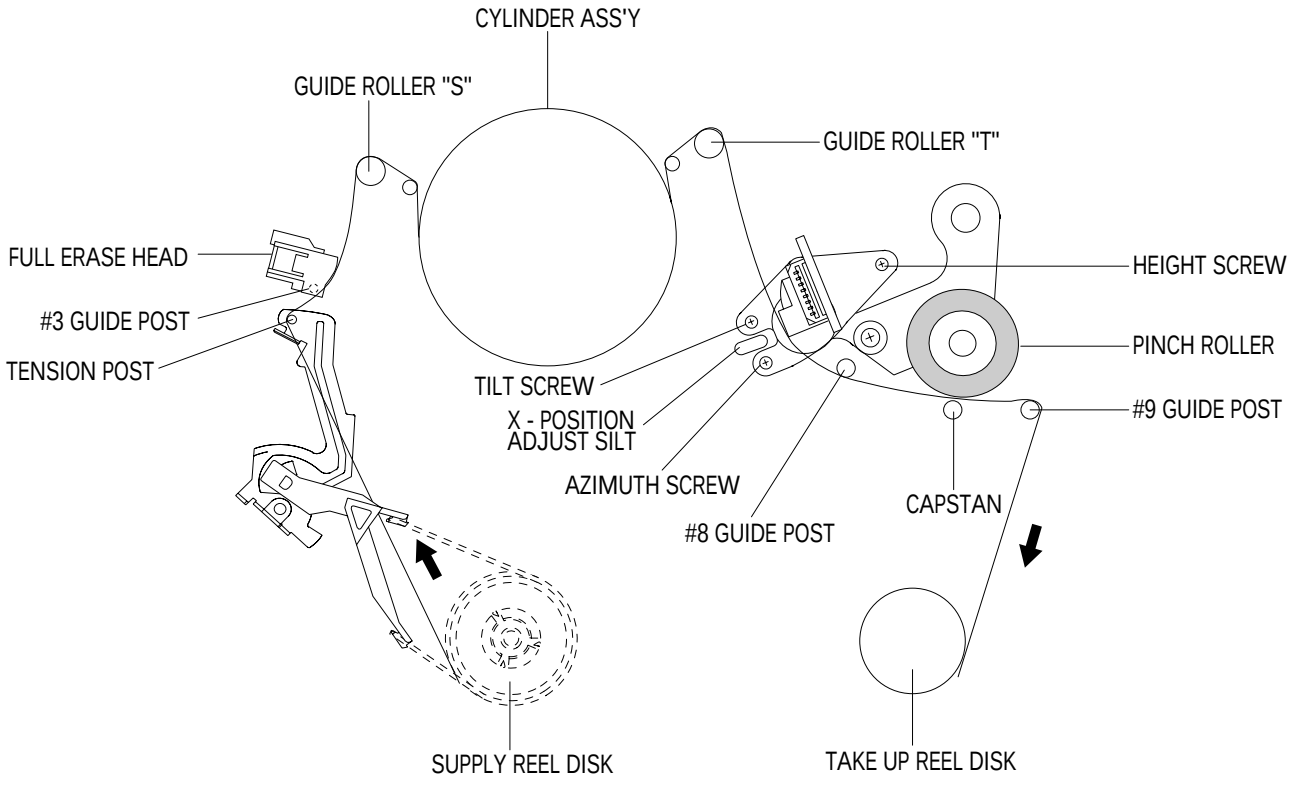


Fig. 2-1 Location of Tape Transport Adjustment

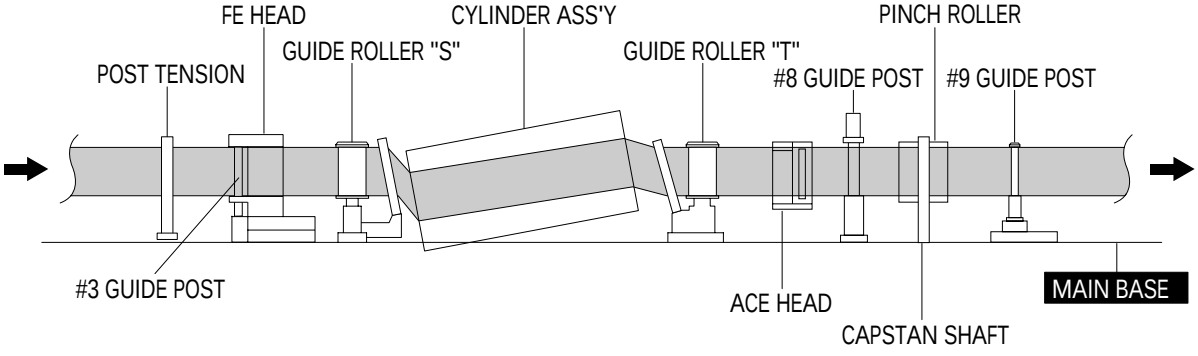


Fig. 2-2 Tape Travel Diagram

2-2 Tape Transport System Adjustment

When parts are replaced, perform the required adjustments by referring to procedures for the tape transport system. If there are any changes to the tape path, first run a T-120 tape and make sure excessive tape wrinkle does not occur at the tape guides.

1) If tape wrinkle is observed at the guide roller S, T, turn the guide roller S, T until wrinkle disappears.
2) If the tape wrinkle is still observed at the tape guide, perform the tilt adjustment of the ACE head. (See page 5-3 of the Service Manual for Test Point Locations.)

2-2-1 ACE Head Assembly Adjustment

2-2-1(a) ACE HEAD HEIGHT ADJUSTMENT

1) Run the alignment tape (KRV-52NE (NTSC) / 52PL (PAL)) in the playback mode.
2) Observe surface of the audio head using a dental mirror.
3) Turn screw (C) clockwise or counterclockwise until the gap of lower tape edge and the lower edge of the control head is about 0.25mm. (Refer to Fig. 2-3 and 2-4)

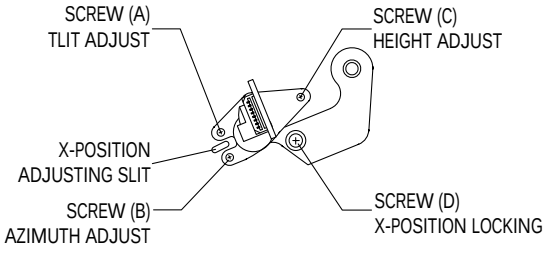


Fig. 2-3 Location of ACE Head Adjustment Screw

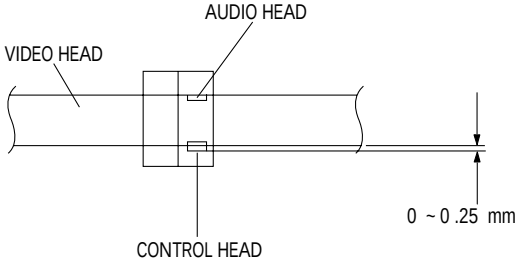


Fig. 2-4 ACE Head Height Adjustment

2-2-1(b) ACE HEAD TILT ADJUSTMENT

1) Playback a blank tape and observe the position of the tape at the lower flange of tape guide.
2) Confirm that there is no curl or wrinkle at the lower flange of tape guide as shown in Fig. 2-5 (B).
3) If a curl or wrinkle of the tape occurs, slightly turn the screw (A) tilt adjust on the ACE head ass'y.
4) Reconfirm the ACE head height.

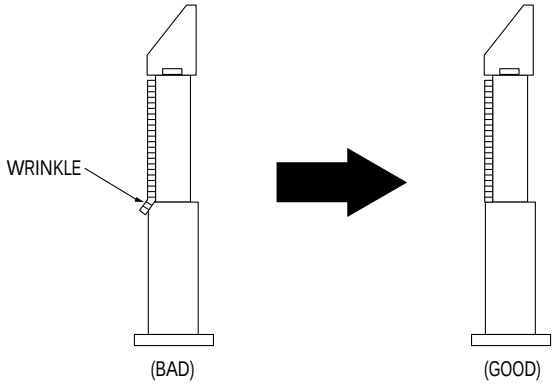


Fig. 2-5 Tape Guide Check

2-2-1(c) AUDIO AZIMUTH ADJUSTMENT

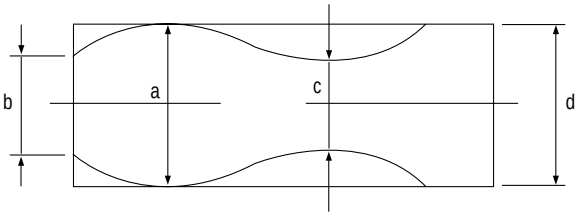
1) Load alignment tape (KRV-52NE (NTSC) / 52PL (PAL)) and playback the NTSC : 5KHz (PAL : 4KHz) signal.
2) Connect channel-1 scope probe to audio output test point.
3) Adjust screw (B) to achieve maximum audio level. (See Fig. 2-3)

2-2-1(d) ACE HEAD POSITION (X-POINT) ADJUSTMENT

1) See "2. Alignment and Adjustment" for ACE Head position (X-Point) adjustment.

2-2-2 Linearity Adjustment
(Guide roller S, T adjustment)

1) Playback the alignment tape (KRV-51N2 (NTSC)/51P (PAL)) (SP mode, Mono Scope).
2) Observe the video envelope signal on an oscilloscope (triggered by the video switching pulse).
3) Make sure the video envelope waveform (at its minimum) meets the specification shown in Fig. 2-6.
   If it does not, adjust as follows :



a b c d
c,b,d/a ≧63%

Fig. 2-6 Envelope Waveform Adjustment

Note :
a=Maximum output of the video RF envelope.
b=Minimum output of the video RF envelope at the entrance side.
c=Minimum output of the video RF envelope at the center point.
d=Maximum output of the video RF envelope at the exit side.

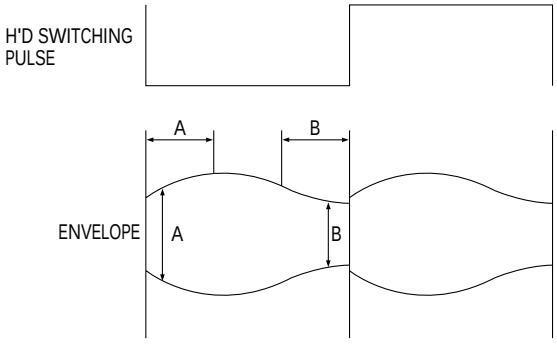


Fig. 2-7 Adjustment Points

4) If the section A in Fig. 2-7 does not meet the specification, adjust the guide roller S up or down.
5) If the section B in Fig. 2-7 does not meet the specification, adjust the guide roller T up or down.
6) Play back the alignment tape (SP mode, Mono Scope).
7) Connect an oscilloscope CH-1 to the Envelope and CH-2 to the H'D SW Pulse for triggering.
8) Turn the guide roller heads with a flat head ( ) driver to obtain a flat video RF envelope as shown in Fig. 2-8.

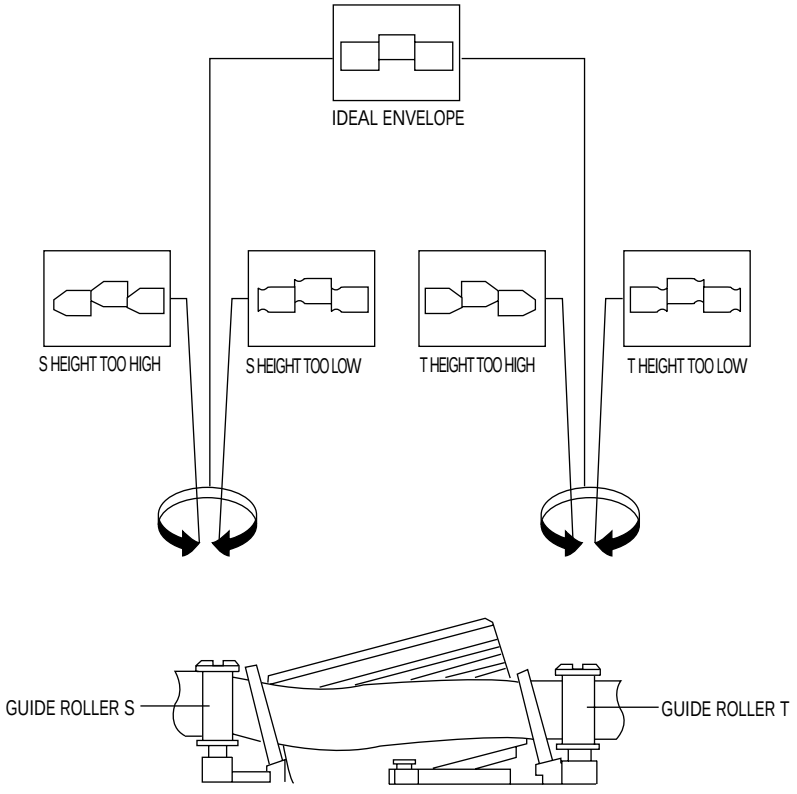


Fig. 2-8 Guide Roller S, T Height Adjustment

2-2-3 Check Transitional Operation from RPS to Play

Check transition from RPS mode to play mode :
Using a pre-recorded SP tape, make sure the entry side of envelope comes to an appropriate steady state within 3 seconds (as shown in Fig. 2-9).
If the envelope waveform does not reach specified peak-to peak amplitude within 3 seconds, adjust as follows :

1) Make sure there is no gap between the supply roller lower flange and the tape.
   If there is a gap, adjust the supply guide roller again.
2) Change operation mode from the RPS to the play mode (again) and make sure the entry side of envelope rises within 3 second.

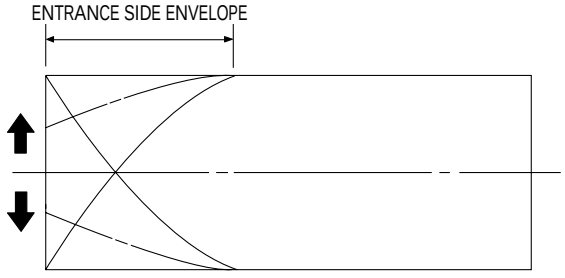


Fig. 2-9 Video Envelope Rising when Operation mode Changes from RPS to Play Mode

2-2-4 Envelope Check

1) Make recordings on T-120 (E-120) and T-160 (E-180) tape.
   Make sure the playback output envelope meets the specification as shown in Fig. 2-10.
2) Play back a self recorded tape (recording made on the unit using with T-120 (E-120).
   The video envelope should meet the specification as shown in Fig. 2-10.
   In SP mode, (A) should equal (B).
   If the head gap is wide, upper cylinder should be checked.

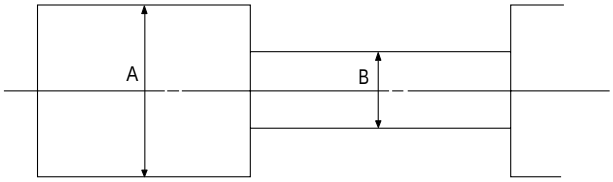


Fig. 2-10 Envelope Output and Output Level

2-2-5 Tape Wrinkle Check

1) Run the T-160 (E-180) tape in the playback, FPS, RPS and Pause modes and observe tape wrinkle at each guide.
2) If excessive tape wrinkle is observed, perform the following adjustments in Playback mode :

◆ Tape wrinkle at the guide roller S, T section :
Linearity adjustment.
◆ Tape wrinkle at tape guide flange :
ACE head assembly coarse adjustment.

2-3 Reel Torque

1) The rotation of the capstan motor causes the Holder Clutch Ass'y to rotate through the Belt Pulley.
2) The spring wrap PLAY/REV of holder clutch ass'y drives the disk reel S, T through gear idle by rotation of gear center ass'y.
3) Brake is operated by slider cam at FF/REW mode.
4) Transportation of accurate driving force is done by gears. (Gear Center Ass'y)

Note : If the spec. does not meet the followings specifications, replace the holder clutch ass'y and then recheck.

<Table 2-1>

MODE	TORQUE g/cm	GAUGE
PB	42 ± 11	Cassette Torquemeter
RPS	145 ± 30	Cassette Torquemeter

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